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## An annotated list of the *Sarcophagidae* (*Macronychiinae*, *Miltogramminae*, *Eumacronychiinae* and *Paramacronychiinae*) recorded in Ukraine (*Diptera*)

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**Abstract:** An annotated list of the *Sarcophagidae* (*Macronychiinae*, *Miltogramminae*, *Eumacronychiinae* and *Paramacronychiinae*) recorded in Ukraine (*Diptera*). *Cesa News* 95: 1-47.

An annotated list of such 80 sarcophagid species from 4 subfamilies and 30 genera is presented: *Macronychia dolini*, *M. lemariei*, *M. striginervis*, *M. substriginervis*, *M. agrestis*, *M. alpestris*, *M. griseola*, *M. polyodon*, *Senotainia albifrons*, *S. puncticornis*, *S. sibirica*, *S. conica*, *S. deserta*, *S. rossica*, *S. tricuspis*, *Protomiltogramma fasciata*, *Pterellaconvergens*, *P. grisea*, *P. melanura*, *Craticulina genesae*, *C. tabaniformis*, *Cylindrothecum ibericum*, *Miltogramma brevipila*, *M. drabermonkoe*, *M. germari*, *M. grossa*, *M. longilobata*, *M. murina*, *M. oeastracea*, *M. punctata*, *M. testaceifrons*, *Miltogrammidium rutilans*, *M. taeniatum*, *Rohdendorfomyia ukrainica*, *Apodaera dispar*, *A. pulchra*, *A. seriemaculata*, *Oebalia cylindrica*, *O. rissica*, *O. unistriata*, *Ptychoneura minuta*, *Amobia oculata*, *A. pelopei*, *A. signata*, *Hilarella hilarella*, *H. stictica*, *Paragusia elegantula*, *P. multipunctata*, *P. pluriseta*, *P. pseudaperta*, *Taxigramma heteroneura*, *Metopia argentata*, *M. argyrocephala*, *M. campestris*, *M. grandii*, *M. italiana*, *M. staegeri*, *Phrosinella persa*, *P. sannio*, *P. nasuta*, *Sphenometopa fastuosa*, *Mesomelena mesomelaena*, *Metopodia pilicornis*, *Phylloteles pictipennis*, *Sarcotachina subcylindrica*, *Nyctia halterata*, *Agria affinis*, *A. mamillata*, *A. monachae*, *Angiometopa falleni*, *A. mihalyii*, *Brachicoma devia*, *B. papei*, *Paramacronychia flavipalpis*, *Sarcophila latifrons*, *S. meridionalis*, *Wohlfahrtia balassogloi*, *W. intermedia*, *W. magnifica*, *W. meigeni*.

**Key words:** *Sarcophagidae*, *Diptera*, fauna, Ukraine

A present list of *Sarcophagidae* known for recent Ukrainian territory includes results of field collections and observations during more than 20 last years in different regions of Ukraine and short ecological and faunistic analysis of literature data for each of species. The general and

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local distributional data are given after Draber-Moňko (2007), Kara & Pape (2002), Kejval (2011), Khrokalo & Verves (2009), Pape (1996), Pape & Merz (1998), Pape et al. (2002), Pekbey & Hayat (2013), Raffone (2009), Richet (1991), Richet et al. (2013), Rudzinski (1999), Verves (1973, 1975a, b, 1977a, b, 1978, 1979, 1986, 1990b, 1998, 2000, 2001b, 2003, 2004, 2006, 2010, 2013; Verves et al., 1984, 2005), Verves & Szpila (2008), Whitmore et al. (2008). The system of sarcophagid flies is presented according to Povolný & Verves (1997), Rohdendorf (1965, 1970), Verves (1982, 1985, 1986, 1989, 1990a, 1993, 1994, 2001a), Verves & Khrokalo (2006, a, b), Xue & Verves (2009), Xue et al. (2011).

The first records for definite administrative regions are asterisked (\*). The data on Ukrainian regions ("Oblasts") are given in alphabetical order. The data on Kyiv City and Kyiv region are separated. The points of more detailed investigations are such:

- Cherkasy Region: Kaniv Biospheric Reserve, annual;
  - Chernigiv Region: Borzna District, environs of Yaduty village, meadows, bushes, pine forests, sandy areas, 7-12.07. & 16-25.08.2000; Ichnya District, "Trostanetz" dendrological park, 4-13.08.1999;
  - Crimea (Krym Republic): Bakhchysarai District, environs of Beregove village, 31.07-11.08.2004; Lenino District: Kazantip State Reservation, 17-29.07.2007;
  - Dnipropetrovsk Region: Novomoskovsk District, environs of Andriivka village, 1-11.08.2000;
  - Kherson Region: Chornomorsky reservation, 18-29.07.2006; Genichesk District, environs of Chernigivka village, coast of Sivash lagoon, 7-26.07.1998;
  - Kyiv City and its environs, stations;
  - Poltava Region: Pyryatyn & Grebinky Districts, 8-18.07.2009 & 13-18.07.2010.
  - Sumy Region, environs of Romny City, 21-27.08.2009.
  - Zaporizhzhya Region: Pryazovske District: environs of Stepanivka village, 10-26.08.1997.
- Abbreviations of states' names present according to MFI country codex.

## List of species

### Subfamily *Macronychiinae*

#### 1. *Macronychia* (s. str.) *dolini* Verves et Khrokalo, 2006

Distribution: Palaearctic: Europe: CZ (Southern Moravia), DK, FR, HR, HU, IT, PL, RU (Perm Region), SK, SE, CH, NL, UA; Asia: RU (Tuva, Tyumen Region), TM. UA: Dnipropetrovsk Region and Kyiv City.

Adult flies feed at flowers of *Conium maculatum*, *Heracleum* sp. (Verves et Khrokalo, 2006b) and *Ostericum palustre* (Draber-Moňko, 1991). From letter of Dr. R. Richet (19.03.2011): "Dear all, in February 1991, my brother-in-law found some pupae in a piece of wood in an old wall with the nest of Hymenoptera (I think a *Megachile*). The little pupae have given a few adults of *Oebalia cylindrica* and the 2 biggers, 2 females of *Macronychia dolini*".

#### 2. *Macronychia* (s. str.) *lemariei* Jacentkovský, 1941

Distribution: Palaearctic: Europe: CZ (Moravia), FR, GR (mainland & Poros I.), HU, UA; Asia: CN (Neimenggu), IL, TR, TM, UZ. UA: Dnipropetrovsk Region.

Flies feed on flowers of *Heracleum* sp. on humid meadow (Verves, 2000).

#### 3. *Macronychia* (s. str.) *striginervis* (Zetterstedt, 1838)

Distribution: Palaearctic: all parts to northern board of taiga, except for CN, KP, KR, MN. Afrotropical Region: KE, ZA. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Ivano-Frankivsk, Kharkiv, Kyiv, Lviv, Poltava, Rivne, Sumy, Vinnytsya and Zakarpattia Regions.

Larvae bred from nests of sphecoid wasp *Ectemnius cavifrons* (Emden, 1954). Flies feed on various flowers, and aphids' excreta. Flying activity from May to September; flies are preferring outskirts of forests and meadows, usually hygrophilous (Povolný & Verves, 1997; Verves & Khrokalo, 2006a, b).

Material examined: Kyiv City: Golosieve District: "Didorovsky" pond, meadows, 26.08. & 5.09.1999, 5 ♂, 6 ♀ (one ♀ leads for sphecoid wasp *Philanthus triangulum*); 9.08.2002, 5 ♂, 3 ♀; Sovky hole, coast of pond, humid meadow, 30-31.07.2002, 5 ♂, 9 ♀; 27.08.2004, 1 ♂ (Yu. Verves); Uralska street, 3-6.07.2009, 2 ♀ (A. Drozdovska); Williams street, dry meadows with sandy areas, at flowers of Asteraceae and Apiaceae, 12.08.2002, 2 ♂ (Yu. Verves). Poltava Region: Pyryatyn District: Lelyaky village, ground road, at flowers of *Daucus carota*, 16.08.2010, 1 ♀ (Yu. Verves).

#### 4. *Macronychia* (*s. str.*) *substriginervis* Verves et Khrokalo, 2006

Distribution: Palaearctic: Europe: FR, UA; Asia: RU (Krasnoyarskiy Kray), TM, UZ. UA: Dnipropetrovsk Region and Kyiv City.

#### 5. *Macronychia* (*Moschusa*) *agrestis* (Fallén, 1810)

Distribution: Palaearctic: Europe northwards to NO and FL, but absent at British Is.; Asia: South Siberia (Altai, Buryatia). UA: Cherkasy, Kharkiv, Kyiv City and Volyn Regions.

Larvae are cleptoparasites (inquilines) of nests of sphecoid wasp *Psenulus* sp. (Pape, 1987); also known as parasitoids of larvae of lasiocampid moth *Macrothylacia rubi* (Saager, 1959). Adults feed on flowers of *Aegopodium* sp. and *Heracleum* sp. (Stackelberg, 1962). Flying period in Central Europe in May-September, with peak in July (Verves & Khrokalo, 2006).

#### 6. *Macronychia* (*Moschusa*) *alpestris* Rondani, 1865

Distribution: Palaearctic: Europe: AT, CZ, FL, FR, DE, HU, IT, LI, LT, PL, SK, ES, CH, UA; Asia: CN (Gansu), KZ (East Province), KG, MN, RU (Buryatia, Chita Region), TJ. UA: Kharkiv and Kyiv Regions.

Larvae are developed in nests of eumenids *Eumenes* sp., *Odynerus parietum* and vespid *Polistes gallicus* (Séguy, 1941). Flies on flowering *Heracleum sphondylium* (Ziegler & Lange, 2001), *Petroselinum sativum* and other *Apiaceae* (Séguy, 1941). In Hohe Tauern National Park (AT) at altitude 1400 m a. s. l. flies were observed in associations *Adenostylo-Piceetum* (Menzel & Ziegler, 2002).

#### 7. *Macronychia* (*Moschusa*) *griseola* (Fallén, 1820)

Distribution: Palaearctic: Europe including British I. and Fennoscandia; Asia: CN (Neimenggu), KZ, KG, RU (southern Siberia), TJ. Oriental: TW. UA: Cherkasy, Chernihiv, Chernivtsi, Crimea, Dnipropetrovsk, Donetsk, Ivano-Frankivsk, Kharkiv, Kirovograd, Kyiv, Lviv, Poltava, Rivne, Sumy, Ternopil, Zakarpattia and Zhytomyr Regions.

Larvae were recorded from nests of sphecoid wasp *Oxybelus* sp. (Pape, 1987). Flying period in mid-Europe from May to September. Flies are common at mesophytic meadows where they feed on flowers, especially *Boraginaceae*, *Lamiaceae*, *Euphorbiaceae*, *Apiaceae* and *Asteraceae*. In mountains on altitudes to 3000 m a. s. l. (Povolný & Verves, 1997; Verves & Khrokalo, 2006a, b).

Material examined: Kyiv City: Golosieve District: Vasylykivska 98, yard, 19.07.2002, 1 ♀ (Yu. Verves).

#### 8. *Macronychia* (*Moschusa*) *polyodon* (Meigen, 1824)

Distribution: Palaearctic: Southern and Mid-Europe, including British Is.; Asia: CN (Beijing, Neimenggu), CY, IL, JP (Hokkaido, Honshu), MN, RU (southern Siberia, Far East), TJ; North Africa: MA. UA: Cherkasy, Chernihiv, Chernivtsi, Crimea, Dnipropetrovsk, Donetsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk, Mykolaiv, Odesa, Poltava, Sumy, Vinnytsya, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Larvae are cleptoparasites (inquilines) in nests of sphecoid wasps *Cenomus* sp., *Clytochrysis chrysostomus*, *Coleocrabro cinxius*, *Crossocerus elongatulus*, *Ectemnius rubicola*, *Lestica*

*lapidarius*, *Oxybelus* sp., *Pemphredon* sp., *Solenius larvatus*, bumblebees *Bombus hortorum* and *B. terrestris* (Séguy, 1941; Verves & Khrokalo, 2006a), and also were reared from dead wood (Adema, 1997). Flies are common on outskirts of mesophytic forests and at scrubs of mountainous regions from April to September. Imago nectarophagous, feed on flowering *Apiaceae* (*Aegopodium*, *Heracleum*, *Pastinaca*, etc.), *Asteraceae*, *Euphorbiaceae* (Verves & Khrokalo, 2006a).

Material examined: Kyiv City: Golosieve District: "Didorovsky" pond, humid banks, 25.08.1999, 1 ♂; 11.07.2002, 1 ♀; Sovky hole, coast of pond, humid meadow, 31.07.2002: 1 ♀ (Yu.Verves); Uralska street, 3-6.07.2009, 1 ♂, 1 ♀ (A. Drozdovska); Vasytkivska street 33, yard, 18.06.2009, 1 ♂; Vasytkivska street 98, yard, 17.06.-22.07.2002, 14 ♀ (Yu.Verves).

### Subfamily *Miltogramminae*

#### 9. *Senotainia (Arrenopus) albifrons* (Rondani, 1859)

Distribution: Palaearctic: all parts except for British Is.; Oriental and Afrotropical Regions. UA: Cherkasy, Chernigiv, Chernivtsi, Crimea, Dnipropetrovsk, Donetsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk, Mykolaiv, Odesa, Poltava, Sumy, Vinnytsya, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Larvae are inquiline in nests of sphecids wasps *Bembecinus asiaticus* (Charykuliev, 1965), *B. hungaricus* (Zolda, 2001), *Bembix rostrata* (Peeters, 2008), *Eremochares dives* (Myartzeva, 1972), *Philanthus triangulum*, *Prionyx pollens* (Charykuliev, 1965), *P. viduatus* (Arens, L. & Arens, E., 1953; Gorobchishin, 2005), *Sphex leuconotus* (Charykuliev, 1962), *Sphex subtruncatus* (Krombein, 1984; Verves, 1979), *Stizus perrisii ibericus* (Asis et al., 1991), *S. transcaspicus* (Charykuliev, 1965; Myartzeva, 1972), *Tachysphex costai fertoni* (Pulawski, 1971). In UA flies feed on flowers, excreta of aphids, dead snails and insects. This species is distributed in sandy and steppe areas, dry meadows, ground roads, including synanthropic habitats. Flying period is continued from the beginning of June to the end of September with peak in August (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: 5 km S of Keleberda village, dry meadow near Kryvi Lakes, 6.06.2003, 1 ♂ (Yu. Verves); Kaniv State Nature Reserve, Zmiyni Is., coast of Kaniv lake, 8.06.2006, 1 ♂ (A. Drozdovska). Chernigiv Region: Borzna District: environs of Yaduty village, Biological Station of Nizhyn University, dry meadows near Trubin lake, 23.08.2000, 5 ♂ (Yu. Verves). Crimea: Bakhchysaray District: Berego village, loam sea shores, 14-16.08.1996, 2 ♂; Lenino District: Kazantip State Reservation, 19.07.2007, 1 ♂ (Yu. Verves). Kyiv City: Golosieve District: "Didorovsky" pond, humid banks, 9.08.2002, 3 ♂, 2 ♀<sup>3</sup>; Vasytkivska street 98, yard, at flowers of *Solidago canadensis*, 22.07.-17.08.2002, 3 ♂; Williams street, dry meadows, 10-28.07.2001, 3 ♂, 1 ♀; 19.08.2002, 1 ♂; Desna District: "Druzhby Narodiv" park, meadows nr lake, 30.07.2008, 1 ♂ (Yu. Verves). Kyiv Region: Kyiv-Svyatoshyn District: Gostomel village, 4 km N, meadows at right bank of Irpin river, 8.07.2001, 2 ♂; Lugansk Region: Stanychno-Luganska District: environs of Nova Kindrashivka village, sandy area, 1.08.2008, 2 ♂, 3 ♀ (A. Drozdovska). Mykolaiv Region: Ochakiv District: Parutino village, debris of antic city Olvia, 16.07.2006, 1 ♂ (Yu. Verves). Odesa Region: Ismail City, 4-8.08.2009, 1 ♀ (V. Corobchysyn). Poltava Region: Pyryatyn District: Davydivka village, meadows, 15.07.2009, 8 ♂; Grabarivka village, meadows nr Ruda river, 15.07.2009, 9 ♂, 2 ♀; Keybalivka village, meadows at bank of Uday river, 11.07.2009, 2 ♂; Lelyaky village, bank of Uday river, 15-17.07.2005, 1 ♂; Usivka village, meadows, 10 & 16.07.2009, 1 ♂, 3 ♀ (A. Drozdovska, V. Gorobchysyn, Yu. Protzenko, Yu. Verves). Sumy Region: Sumy District: Mogrytzya village, 7-9.08.2009, 1 ♂ (Yu. Protzenko). Zhytomyr Region: Ovruch District: Polisky Natural Reserve, 13-17.07.2007, 1 ♀ (O. Moroz). Zaporizhzhya Region: Akymivka District: Altagir village, meadows & bushes, 4-15.06.2008, 1 ♂ (Yu. Verves).

<sup>3</sup> One ♀ leads for ♀ of *Philanthus triangulum*.



**10. *Senotainia (Arrenopus) puncticornis* (Zetterstedt, 1859)**

Distribution: Palaearctic: Europe: AT, CZ (Moravia), FR, DE DK, FL, NO, PL, SK, SE, CH, NL, UA SK, SE, CH, NL, UA; Asia: CN (Shanxi, Sichuan), RU (Altai, Krasnoyarsky Kray, Primorye), UA: Chernigiv region.

Larvae in nests of sphecoid wasp *Crossocerus cinxius* (Kramer, 1920). Adult flies were collected at mesophytic meadows and forest borders from June to August (Verves, 2006).

**11. *Senotainia (Arrenopus) sibirica* Rohdendorf, 1935**

Distribution: Palaearctic: Europe: UA; Asia: CN (Heilongjiang, Neimenggu, Shaanxi, Sichuan), KZ (Kokshetau Region). Oriental Region: CN (Hunan, Yunnan). UA: Kyiv and Poltava\* Regions.

Psammophilic species; flying period in June – August (Verves, 2006).

Material examined: Kyiv Region: Brovary District: Zazymya village, 5 km N, meadows near Desna river, 1.08.2001, 3 ♂, 1 ♀; Kyiv-Svyatoshyn District: Gostomel village, 4 km N, meadows at right bank of Irpin river, 8.07.2001, 2 ♂ (Yu. Verves). Poltava Region: Pyryatyn District: Grabarivka village, meadows nr Ruda river, 15.07.2009, 1 ♂; Kharkivtzy village, 2 km S, locality “Velyki Solontzi”, 13-14.07.09, 1 ♂, 1 ♀ (Yu. Verves).

**12. *Senotainia (s. str.) conica* (Fallén, 1810)**

Distribution: Palaearctic: Europe, including British Is. and Fennoscandia; Asia: CN (Hebei, Neimenggu), IL, KZ, MN, RU (southern Siberia, Far East), Transcaucasia, TR, TM. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Donetsk, Ivano-Frankivsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk, Lviv, Odesa, Poltava, Sumy, Vinnytsya, Volyn, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Females of fly wait close to host nests, continually looking in different directions for arriving wasps. The fly runs into the nest behind the wasp then flies out a second later, probably after depositing a single maggot directly on to the impaled fly. The maggot destroys the host egg and then feeds on the prey (Else & Field, 1997). Larvae areinquilines of nests of sphecoid wasps: *Ammophila sabulosa* (Gorobchishin, 2005), *Bembicidium tridens* (Dunk, 1995), *Bembix integra* (Séguy, 1941), *B. rostrata* (Peeters, 2008), *Crabro peltarius* (Baer, 1921), *C. scutellatus* (Tiensuu, 1939), *Oxybelus* sp. (Else & Field, 1997), *O. bipunctatus* (Verves & Gorobchishin, 1995), *O. uniglumis* (Chevalier, 1926), *Philanthus triangulum* (Baer, 1921; Charykuliev, 1965), *Sphex albicestus* (Nuorteva, 1946), *Tachysphex ibericus* (Audcent, 1942), *T. unicolor* (Séguy, 1941) and solitary bees: *Halictus lucidulus* (Draber-Moňko, 1978), *H. subauratus* (Séguy, 1941). In UA flies feed at flowers of *Anethum graveolens*, *Pyrethrum corymbosum*, *Solidago canadensis*, excreta of aphids, decaying fruits and feces. This species is distributed in sandy areas of mesophytic and xerophytic meadows, bushes, ground roads, including synanthropic habitats. Flying period is continued from the end of April to the middle of October wit peak in August (Verves, 2003; Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, dunes near Keleberda village, 8.08.2003, 1 ♀ (A. Drozdovska); sandy coast of Dnipro, 2.06.2003, 1 ♀; Krugly I., 18-20.07.1986, 1 ♂, 1 ♀ (Yu. Verves); Shelestiv I., 24.06.1988, 1 ♂ (S. Zrazhewsky); Zmiyini Is., coast of Kaniv lake, 23.05.2003, 4 ♂, 1 ♀; 6.08.2003, 1 ♂ (Yu. Verves); Uman City: Dendrological park “Sofiivka” 13-14.06.2006, 4 ♂. Chernigiv Region: Borzna District: Makoshyno village, right coast of Desna, meadows, 20.08.2000, 2 ♂; Yaduty village, Biological Station of Nizhyn University, sand-pit in pine forest near Trubin lake, 11.06.-21.08.2000, 31 ♂, 32 ♀; Ichnya District: “Trostyanetz” dendrological park, meadows and forest at lake coast, 9-13.08.1999, 4 ♂, 1 ♀ (Yu. Verves). Crimea: Bakhchisaray District: Beregove village, sandy area, 11-16.08.1996, 4 ♂, 1 ♀ (Yu. Verves). Kyiv City: Golosieve District: Baykove Cementery, 16.08.2004, 1 ♂; Kozacha street, on leaves & walls, 7.07.2005, 1 ♂, 1 ♀; Sovky hole, coast of pond, humid meadow, 30.07.2002, 1 ♂; Vasylkivska str. 33, yard, 24.06.-28.07.2010, 17 ♂, 2 ♀; Williams street, dry meadows, 10-28.07.2001, 4 ♂, 3 ♀; 12-19.08.2002, 4 ♂, 8 ♀; Solomensky District: Strazhesko Hospital territory, at roads & leaves 21-27.8.2003, 8 ♂, 11 ♀; Desna District: “Druzhby Narodiv” park, sandy coast of

Dnipro & dry meadows, 1.07.2001, 2 ♂; 8.07.2005, 2 ♀; 30.07.2008, 1 ♂; Moscow bridge, 2 km N, island at Dnipro, 27.06.2008, 5 ♂, 4 ♀. Kyiv Region: Boryspil District: Rozhny village, bushes at Dnipro coast, 15-22.08.1999, 14 ♂, 9 ♀; Brovary District: Zazymya village, 5 km N, meadows near Desna, 1.08.2001, 1 ♂; Kyiv-Svyatoshyn District: Gostomel village, 4 km N, meadows at right bank of Irpin river, 8.07.2001, 1 ♀; Myronivka District: Tulyntzy village, feather-grass steppe with bushes, 29.05.-4.06.2003, 1 ♂, 2 ♀; Obukhiv District: Stugna river, coast along Kyiv-Obukhiv road, 27.5.2001, 1 ♂, 1 ♀; Tatzenky village, 3 km S, at leaves and ground at border of pine forest near lake, 14.09.2003, 1 ♂; Ukrainka City, 4 km W, at leaves and ground at border of pine forest nr lake, 21.08.2004, 2 ♂, 9 ♀; Velyki Dmytrovychi village, sandy area, 4.07.1994, 3 ♂, 2 ♀; 4.07.1999, 1 ♂, 1 ♀; Vyshgorod District: Kyiv reservoir, left coast, 20 km N of dam, sandy area & bushes, 5.8.2001, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 6 ♂, 4 ♀ (A. Drozdovska). Odesa Region: Ismail District: Ismail City, 8.08.2009, 1 ♀; Kyslytzya village, 15 km SE, 2.08.2009, 1 ♀; Suvorove village, 21.05. & 12.08.2003, 2 ♂, 1 ♀; 20-23.08.2009, 2 ♂, 2 ♀ (V. Corobchyshyn, Yu. Protzenko). Poltava Region: Grebinky District: Kulazhyntzy village, meadows, 13 & 15.08.2010, 1 ♂; Pyryatyn District: Bilotzerkivtzi village, locality Murentzeve, 15.08.2010, 1 ♀; Davydivka village, meadows, 15.07.2009, 3 ♂; Deymanivka village, 16.7.2005, 1 ♂, 2 ♀; Grabarivka village, meadows nr Ruda river, 15.07.2009, 29 ♂, 17 ♀; Keybalivka village, bank of Uday river, 11-17.07.2005, 13 ♂, 10 ♀; Kharkivtzy village, 2 km S, locality "Velyki Solontzi", 13-14.07.09, 1 ♂; Lelyaky village, 21.7.2005, 1 ♂, 1 ♀; meadows at bank of Uday river, 12. & 16.08.2010, 2 ♂; Povstyn village, locality "Burty", meadows, 12.07.2009, 1 ♂; Shkuraty village, meadows, 17.07.2009, 1 ♀; Usivka village, meadows, 10 & 16.07.2009, 61 ♂, 29 ♀; Zhovtneve village, meadows, 13.07.09, 1 ♂ (A. Drozdovska, V. Gorobchyshyn, Yu. Protzenko, O. Tkachenko, Yu. Verves). Sumy Region: Romny City: banks of Romenka river, 30.08.2010, 1 ♀ (Yu. Verves); Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 12 ♂, 13 ♀ (Yu. Protzenko); Sumy District: Mogrytzya village, 7-9.08.2009, 4 ♂, 5 ♀ (Yu. Protzenko); Vakolovschyna village, dry meadow, 17.06.1992, 2 ♂, 7 ♀ (V. Gorobchyshyn); Trostyanetz City, meadows and forest at lake coast, 3.08.1999, 1 ♂ (Yu. Verves); Zaporizhzhya Region: Melitopol District: Melitopol City, "Kamyani Mogyly" reservation, at stones, 28.08.1997, 1 ♀; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 11-27.08.1997, 11 ♂, 4 ♀ (Yu. Verves). Zhytomyr Region: Ovruch District: Polisky Natural Reserve, 13-17.07.2007, 1 ♀ (O. Moroz); Selezivka village, sandy area, 10-13.07.2006, 4 ♀ (Yu. Protzenko).

### 13. *Senotainia (s. str.) deserta* Rohdendorf, 1935

Distribution: Palaearctic: Europe: RU (Astrakhan Region, Dagestan), UA; Asia: CN (Gansu, Neimenggu), IL, KZ, MN, TJ, TM, TR, UZ; North Africa: EG. UA: Crimea, Donetsk, Kherson, Mykolaiv, Odesa\* and Zaporizhzhya Regions.

Larvae developed in prey of sphecids wasps *Bembicinus asiaticus*, *Stizus transcaspicus* and *Tachysphex schmiedeknechti* (Charykuliev, 1965; Myartzeva, 1972). In UA this flies were collected in June – August at sandy sea shores exclusively (Verves, 2006).

Material examined: Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 24-27.08.1987, 1 ♂, 2 ♀; 15.06.1988, 1 ♀ (S. Zrazhewsky). Odesa Region: Ismail District: Suvorove village, 20-23.08.2009, 3 ♂, 17 ♀ (V. Corobchyshyn). Zaporizhzhya Region: Berdyansk City, sandy spit at Azov Sea, 14-17.08.1994, 5 ♂; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 11-26.08.1997, 13 ♂, 2 ♀ (Yu. Verves).

### 14. *Senotainia (s. str.) rossica* Rohdendorf, 1935

Distribution: Palaearctic: Europe: RU (Yaroslavl Region), UA; Asia: KZ (Akmolinsk Region), RU [West Siberia (Novosibirsk Region), East Siberia (Chita Region)]. UA: Poltava and Zaporizhzhya Regions.

Flies prefer dry meadows and steppe; flying period in UA from June to August (Verves, 2006).

Material examined: Poltava Region: Chutiv District: Gryakove village at Orchyk river, 15-21.06.1897, 1 ♂ (N. Zarudny). Zaporizhzhya Region: Melitopol City, tree-planting, 27.06.1981, 1 ♂ (S. Dzhabarov).

**15. *Senotainia (s. str.) tricuspis* (Meigen, 1838)**

Distribution: Palaearctic: Europe northwards to Fennoscandia and Leningrad Region (absent at British Is.); Asia: CN (Neimenggu), IL, KZ, MN, RU [South Siberia], TR, Transcaucasus; North Africa: DZ, EG, TN. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Donetsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk\*, Mykolaiv, Poltava and Zaporizhzhya Regions.

Larvae are endoparasites of adult honey bees (*Apis mellifera*) and are the very important pests of beekeeping. Adult flies prefer sandy habitats, frequenting flowers, often in bee gardens, where females waylay bees. They pursue passing bees and deposit up to 1-6 larvae on a bee body, usually thorax. Larvae penetrate the jugular membrane of the host and enter the body cavity; one ♀ fly can produce 100-400 or more larvae. The larvae live in the thorax and feed on haemolymph and muscle tissue. Bees infested perish within 2-3 days after invasion. The adult larvae develop in the hosts corpse for several (4-9) days; pupation takes place in the soil. The metamorphosis in the puparium lasts up to 72 days (Astolfi, 2001; Becker, 2010; Ben Hamida, 1999; Boiko, 1939, 1949, 1963, 1967; Colin, 2012; Fiasson & Simintzis, 1951; Giordani, 1956; Ibrahim, 1984; Longo, 2006; Mathis, 1957, 1960, 1975; Palmeri et al., 2003; Piazza & Marinelli, 2000; Piazza et al., 2001; Povolný & Verves, 1997; Santini, 1995; Simintzis, 1958; Simintzis & Fiasson, 1959; Smirnov & Luganskiy, 1987; Verves & Khrokalo, 2006b; Verves, 2006). It is interesting, that in borders of Iberian Peninsula *S. tricuspis* has not any practical value (Orantes, Gonzalez & Garcia, 1996; Pires, Cadavez & Valério, 2011; Rocha & Delgado, 1986). Occasionally the larvae can be the parasites of adult bumblebees – *Bombus lapidarius*, *B. muscorum*, *B. terrestris* (Boiko, 1948; Schmid-Hempel, 2001) and solitary bees *Halictus* sp. (Boiko, 1963); inquiline of nests of sphecids wasps - *Ectemnius rubicola*, *Philanthus triangulum* (Séguy, 1941), and *Oxybelus bipunctatus* (Verves & Gorobchishin, 1995). Flying period in UA is continued from June to the middle of September (Verves, 2006); adults feed on different flowering plants (Draber-Mońko, 1973).

Material examined: Kyiv City: Golosieve District: “Didorovsky” pond, humid banks, 11.07.2002, 1 ♀; Vasylykivska street 33, yard, 24.06.2010, 1 ♂ (Yu. Verves). Poltava Region: Grebinky District: Oleksandrivka village, kurgan “Gostra Mogyla”, 14.07.2009, 3 ♂, 1 ♀; Pyryatyn District: Grabarivka village, meadows nr Ruda river, 15.07.2009, 1 ♀; Keybalivka village, meadows nr Uday river, 11-15.07.2009, 1 ♂, 1 ♀; Kharkivtzy village, 2 km S, locality “Velyki Solontzi”, 13-14.07.09, 1 ♂, 1 ♀; Shkuraty village, meadows, 17.07.2009, 1 ♂, 7 ♀; Zhovtneve village, meadows, 13.07.09, 1 ♂ (A. Drozdovska, V. Gorobchishyn, Yu. Protzenko, Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♀ (A. Drozdovska).

**15. *Protomiltogramma fasciata* (Meigen, 1824)**

Distribution: Palaearctic: Europe: AT, CZ, DE, ES, FR, HR, HU, IT, PL, PT, RS, RU (Voroniezh Region), SK, UA; Asia: AF, CN (Neimenggu), IR, IL, KZ, Mid Asia, MN, RU (Altai, Astrakhan Region, Buryatia, Chita Region, Dagestan, Primorye), SA, TR, Transcaucasus; North Africa: DZ, EG, ES (Canary Is.), MA. UA: Cherkasy, Crimea, Kherson, Kyiv, Mykolaiv, Odesa and Zaporizhzhya Regions.

Larvae are developed as cleptoparasites (inquilines) in nests of sphecids wasp *Bembix* sp. (Séguy, 1941), *B. oculata* (Evans & O’Neil, 2007), *Philanthus triangulum* (Myartzeva, 1972), *Stizus perrisi ibericus* (Asis et al., 1991). Psammophilous species; flies prefer sandy areas of river banks and ground roads where feed on aphidid excrements and flowers (Artamonov, 1992; Povolný & Verves, 1997; Verves & Khrokalo, 2006b). Flying period is continues from the mid of June to the beginning of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, sandy coast of Dnipro, 12.08.2010, 3 ♂; Keleberda village, 5 km S, dry meadow near Kryvi Lakes, 6.06.2003, 1 ♂ (Yu. Verves). Crimea: Lenino District: Kazantip State Reservation, 23-29.07.2007, 26 ♂, 1 ♀ (Yu. Verves); Theodosia municipal government, Karadagh Natural Reserve, 5.07.2006, 1 ♀ (A. Drozdovska).

**16. *Pterella convergens* (Pandellé, 1895)**

Distribution: Palaearctic: Europe: HR, FR, DE, GR, PL, UA; Asia: CY, IL, TR; North Africa: DZ. UA: Crimea\*, Kherson & Kyiv Regions.

Larvae were bred from nest of solitary bee *Anthidium* sp.; psammophilous species (Verves, 2006). Flies feed on flowers of *Peucedanum oreoselinum* (Draber-Mońko, 1973).

Material examined: Crimea: Lenino District: Kazantip State Reservation, 26.07.2007, 3 ♂, 1 ♀ (Yu. Verves). Kherson Region: Chaplynka District: 50 km S Ascania Nova, loamy coast of Sivash, 26.07.2008, 20 ♂, 4 ♀ (Yu. Verves).

**17. *Pterella grisea* (Meigen, 1824)**

Distribution: Palaearctic: Europe, including British Is. and Fennoscandia; Asia: CN (Neimenggu), IL, KZ, MN, RU (South Siberia), Transcaucasia, TU. UA: Cherkasy, Chernigiv, Dnipropetrivsk, Donetsk, Ivano-Frankivsk, Kharkiv, Kherson, Khmelnytsky, Kyiv, Odesa\*, Poltava, Ternopil, Zakarpattia, Zaporizzhya and Zhytomyr Regions.

Larvae in nests of sphecoid wasp *Cerceris arenaria* feed the paralyzed chrysomelid beetles *Clythra* spp. (Hamm, 1909; Séguy, 1941). Flies feed at flowers of *Achillea millefolium*, *Matricaria chamomilla*, *Peucedanum oreoselinum*, *Sedum acre*, *Tripleurospermum inodorum* (Draber-Mońko, 1973). In UA adults prefer mesophytic herbaceous associations, where feed on flowering plants and excreta of aphids; flying period is continued from June to September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv State Nature Reserve, tip of hill "Maryina Gora", ground road, 220 m a. s. l., 3.06.2003, 2 ♂ (Yu. Verves). Kyiv City: Desna District: "Druzhby Narodiv" park, meadows nr lake, 30.07.2008, 1 ♂; Golosieve District: Williams street, dry meadows, 10-14.07.2001, 3 ♂ (Yu. Verves). Kyiv Region: Brovary District: 5 km N Zazymya village, meadows near Desna, 1.08.2001, 2 ♂, 1 ♀ (Yu. Verves). Odesa Region: Ismail District: Kyslytzya village, 15 km SE, 2.08.2009, 1 ♀ (Yu. Protzenko).

**18. *Pterella melanura* (Meigen, 1824)**

Distribution: Palaearctic: Europe, except of British Is. and Fennoscandia; Asia: CY, IL, KZ, KG, MN, RU (South Siberia and Primorye), Transcaucasia, TR. UA: Cherkasy, Chernigiv, Crimea\*, Dnipropetrivsk, Kherson, Khmelnytsky, Kyiv, Mykolaiv\*, Odesa\*, Poltava & Zhytomyr Regions.

Larvae feed at paralyzed beetles in the nests of sphecoid wasps from the genus *Cerceris*: *C. emarginata*, *C. julii*, *C. rubida* (Séguy, 1941), and *C. sabulosa* (Asis et al., 1991). Imago prefers mesophytic grasslands (Povolný & Verves, 1997). In UA flying period is continued from June to August (Verves, 2006).

Material examined: Crimea: Lenino District: Kazantip State Reservation, 27.07.2007, 1 ♂ (Yu. Verves). Kherson Region: Chaplynka District: Ascania Nova, 50 km S, loamy coast of Sivash, 26.07.2008, 2 ♂, 1 ♀ (Yu. Verves). Kyiv City: Olzhyn I. at Dnipro, 10 km S Kyiv City, 16.09.2009, 2 ♂ (Yu. Verves); Golosieve District: Williams street, sandy area, 20.08.2003, 1 ♂ (Yu. Protzenko). Kyiv Region: Boryspil District: Rozhny village, bushes at Dnipro coast, 22.08.1999, 1 ♀ (Yu. Verves). Mykolaiv Region: Ochakiv District: Parutino village, debris of antic City Olvia, 16.07.2006, 1 ♀ (Yu. Verves). Odesa Region: Ismail District: Maly Taman I., 15.07.2003, 2 ♂; Suvorove village, 21.05.2003, 2 ♀ (Yu. Protzenko). Poltava Region: Grebinky District: Oleksandrivka village, kurgan "Gostra Mogyla", 14.07.2009, 1 ♂ (V. Gorobchyshyn).

**19. *Craticulina genesae* Verves, 1998**

Distribution: Palaearctic: Europe: UA: Crimea\*, Kherson and Zaporizzhya Regions. Flies were collected in sandy areas of sea shores from the end of June to the end of August (Verves, 1998; Verves, 2006).

Material examined: Crimea: Lenino District: Kazantip State Reservation, 28.07.2007, 1 ♂ (Yu. Verves).



**21. *Craticulina tabaniformis* (Fabricius, 1805)**

Distribution: Palaearctic: South and Central Europe; Asia: AM, IL, TR, RU (Primorye); North Africa: WT. Oriental Region: IN (Tamil Nadu), ID (Sumatra), LK, TH. UA: Crimea, Kherson, Kyiv, Lugansk\*, Mykolaiv, Odesa & Zaporizhzhya Regions.

Larvae in nests of sphecids wasps *Bembix borrei* (Krombein & Vecht, 1987; Verves, 1979), *B. bolivari* and *B. oculata* (Evans & O'Neil, 2007; Séguy, 1941). Flies feed on flowering plants in sandy areas; psammophilic species; in UA flying period is continued during whole summer (Verves, 2006).

Material examined: Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska).

**22. *Cylindrothecum ibericum* (Villeneuve, 1912)**

Distribution: Palaearctic: Europe: AT, FL, IT, RU (Leningrad, Perm, Tver Regions), ES, SE, UA; Asia: CN (Hebei, Henan, Jiangsu, Liaoning, Shaanxi, Shandong, Sichuan), KP, KR, RU (Amur, Irkutsk, Novosibirsk, Tomsk Regions, Primorye), Tib; Africa: DZ. Oriental: CN (Fujian, Guangdong, Guangxi, Yunnan, Zhejiang), IN (Jammu & Kashmir), MY (Sarawak), TW, TH, VN. Australasian/Oceanian: PG [Bismarck Arch. (Gizo I.)]. UA: Crimea.

Larvae were found in a nest of megachilid bees *Anthophora* sp. (Pape, 1987) and *Megachile* sp. Mesophytic species; imagoes feed at flowers of *Heracleum sibiricum* and other *Apiaceae* (Stackelberg, 1962; Verves, 2006). In mountains to 1280 m a. s. l. (Kurahashi & Chaiwong, 2013).

Material examined: Crimea: Lenino District: Kazantip State Reservation, 19.07.2007, 4 ♂ (Yu. Verves).

**23. *Miltogramma brevipila* Villeneuve, 1911**

Distribution: Palaearctic: Europe: AT, CZ (Moravia), FR (south part and Corsica), HU, IT, NO, RO, SK, ES, SE, CH; Asia: AZ, CN (Xinjiang), CY, EG (Sinai), IL, KZ, MN, TJ, TR, TM, UZ; North Africa: TN. UA: Crimea, Dnipropetrovsk, Kherson and Kyiv Regions.

Larvae were found in a nest of megachilid bee *Anthidium* sp. (Verves, 1984a). Imago prefer sandy-strip in feather-grass steppe at the tips of hills (Verves, 2000).

Material examined: Kyiv City: Solomensky District: Strazhesko Hospital territory, sandy area, 21-27.08.2003, 2 ♂ (Yu. Verves).

**24. *Miltogramma drabermontkoe* Verves & Szpila, 2008**

Distribution: Palaearctic: Europe: UA: Kherson Region.

**25. *Miltogramma germari* Meigen, 1824**

Distribution: Palaearctic: Europe, including British Is. and Fennoscandia; Asia: KZ, MN, RU (southern Siberia), TR; North Africa: DZ, MA. UA: Cherkasy, Chernigiv, Kherson, Kirovograd, Kyiv, Lugansk, Mykolaiv, Odesa, Poltava, Rivne\*, Sumy\*, Zaporizhzhya and Zhytomyr Regions.

The larvae are developed in nests of solitary bees in elders' (*Sambucus nigra*) stems: *Heliophila bimaculata* and *Megachile* sp. (Kramer, 1917; Séguy, 1941). The flies frequent different xero- and mesophytic habitats with bushes, feeding on flowers of herbaceous plants (*Asteraceae*, *Euphorbiaceae* etc) (Povolný & Verves, 1997). In UA flying period is continued from June to September (Verves, 2006).

Material examined: Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, sand-pit in pine forest near Trubin lake, 8.07.-16.08.2000, 19 ♂, 14 ♀ (Yu. Verves). Kyiv City: Desna District: "Druzhby Narodiv" park, sandy coast of Dnipro & dry meadows, 1.07.2001, 1 ♂; 30.07.2008, 4 ♂; Golosieve District: Williams street, dry meadows, 28.07.2001, 1 ♀; ibid., 12-19.08.2002, 4 ♀ (Yu. Verves). Kyiv Region: Brovary District: Zazymya village, 5 km N, meadows near Desna, 1.08.2001, 1 ♂; Rokytno District: Busheve village, N 49°39', E 30°35', open cast, 27.07.2012, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 6 ♂, 7 ♀ (A. Drozdovska). Poltava Region: Pyryatyn

District: Lelyaky village, bank of Uday river, 15-17.07.2005, 7 ♂; 11.07.2009, 1 ♀; Usivka village, meadows, 10 & 16.07.2009, 32 ♂, 2 ♀ (A. Drozdovska, V. Gorobchishyn, Yu. Verves). Rivne Region: Dibrovtyzha City, 17 km SSE, 22.07.1988, 2 ♂ (S. Zhrazhevsky). Sumy Region: Sumy District: Mogrytzya village, 7-9.08.2009, 2 ♂ (Yu. Protzenko).

### 26. *Miltogramma grossa* Rohdendorf, 1930

Distribution: Palaearctic: Europe: HU, RU (Orenburg), UA: Kharkiv Region.  
Mesophytic species; flies at flowers of *Achillea* sp. (Verves, 2006).

### 27. *Miltogramma longilobata* Rohdendorf, 1930

Distribution: Palaearctic: Europe: MD, PL, UA; Asia: AM. UA: Donetsk and Kharkiv Regions.

Flies collected at psammophilic meadow (Draber-Mońko, 1991).

### 28. *Miltogramma murina* Meigen, 1824

Distribution: Palaearctic: Europe: AT, BE, BG, HR, CY, CZ, FR (continental & Corsica), DE, GR, HU, IT (continental, Sardinia & Sicily), MT, MD, PL, RO, SK, UA; Asia: RU (Chechnya), TR; North Africa: LY, MA, TN. UA: Poltava and Zaporizhzhya Regions.

Larvae recorded from nests of solitary bees: *Hoplitis tridentata* (Séguy, 1941), *Megachile circumcincta* (Kramer, 1917), *M. pacifica* (Dochkova, 1982; Grobov et al., 1988; Tasei, 1975), *Osmia* sp. (Mihályi, 1979), *O. aurulenta* (Séguy, 1941), *Trachusa bussina* (Kramer, 1917). Xerophilous and psammophilous species (Povolný & Verves, 1997). Flying period from June to September (Verves, 2006); imagoes feed on flowers of *Thymus serpyllum* (Draber-Monko, 1973).

### 29. *Miltogramma oestracea* (Fallén, 1820)

Distribution: Palaearctic: Europe including Fennoscandia and except British Is.; Asia: AM, AZ, CN (Neimenggu), IL, KZ, LB, MN, RU (North Caucasus, Siberia & Magadan Region), SY, TR, TM; North Africa: DZ, LY. UA: Cherkasy, Chernigiv, Dnipropetrovsk, Kharkiv, Kherson, Kirovograd, Kyiv, Odesa, Poltava, Sumy, Ternopil, Zaporizhzhya and Zhytomyr Regions.

Larvae recorded from nests of sphecids: *Cerceris*, *Podalirius* (Pape, 1987) and solitary bees: *Anthophora acervorum*, *Dasypoda plumipes* (Baer, 1921), *Megachile pacifica* (Grobov et al., 1988; Sierra & Ibañez, 1972). Flies frequent sandy areas or xero- and mesophytic herbaceous strata in bushy habitats, feeding on flowers of different herbaceous plants. In UA flying period is continued from the beginning of June to the end of September (Povolný & Verves, 1997; Verves & Khrokalo, 2006a; Verves, 2006).

Material examined: Kyiv City: Desna District: "Druzhby Narodiv" park, meadows nr lake, 30.07.2008, 1 ♂; Golosieve District: Dyky island at Dnipro, sandy area, N 50°17'02", E 30°39'22" 8.09.2011, 1 ♂ (Yu. Verves). Kyiv Region: Obukhiv District: Velyki Dmytrovychi village, ground road, 10.07.1999, 1 ♂ (Yu. Verves). Odesa Region: Ismail District: Suvorove village, 21.05.2003, 1 ♂ (Yu. Protzenko).

### 30. *Miltogramma punctata* Meigen, 1824

Distribution: Palaearctic: Europe, including British Is. and Fennoscandia; Asia: AF, CN (Neimenggu), CY, IR, IL, JP (Hokkaido, Honshu), KZ, KG, Mid Asia, LB, MN, RU (North Caucasus, West Siberia and Far East), SY, TJ, Transcaucasia, TM; North Africa: DZ, ES (Canary Is.), EG. UA: Cherkasy, Chernigiv, Dnipropetrovsk, Kharkiv, Khmelnytsky, Kyiv, Lugansk\*, Mykolaiv\*, Poltava, Ternopil, Zaporizhzhya and Zhytomyr Regions.

Larvae areinquilines in nests of sphecids *Bembix* sp. (Charykuliev & Myartzeva, 1964), *B. rostrata* (Fabre, 1903), *Podalonia hirsuta* (Baer, 1921; Gorobchishin, 2005; Truc, 1989), *Tachysphex costai* (Grandi, 1961), *Trachelioides* sp. (Pape, 1987) and solitary bees *Colletes davesianus* (Baer, 1921; Blair, 1920; Scheloske, 1974), *C. fodiens* (Baer, 1921), *C. inexpectatus* (Draber-Mońko, 1969), *C. succincta* (Baer, 1921; Tiensuu, 1939), *Halictus sexnotatus* (Tiensuu,

1939). A characteristic psammophilous species; adult flies feed at flowers of Asteraceae, Apiaceae etc. In UA flying period is continued from the end of May to the end of September (Povolný & Verves, 1997; Verves & Khrokalo, 2006c; Verves, 2006).

Material examined: Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, sand-pit in pine forest near Trubin lake, 8.07.2000, 3 ♂ (Yu. Verves). Kyiv City: Desna District: "Druzhby Narodiv" park, meadows nr lake, 30.07.2008, 1 ♂; Golosieve District: Vasylkivska street 33, yard, 24.06.2010, 1 ♂; Williams street, dry meadows, 10-28.07.2001, 7 ♂, 2 ♀; 12.08.2002, 1 ♂ (Yu. Verves). Kyiv Region: Obukhiv District: Velyki Dmytrovychi village, sandy area, 4.07.1994, 1 ♂; 4.07.1999, 1 ♂; Boryspil District: Rozhny village, bushes at coast of Dnipro, 15.08.1999, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska). Mykolaiv Region: Ochakiv District: Kinburn sandy area, 10.05.2004, 1 ♂ (Yu. Protzenko).

### 31. *Miltogramma testaceifrons* (Roser, 1840)

Distribution: Palaearctic: Europe northwards to SE and Leningrad Region; Asia: AM, AZ, CN (Neimenggu, Xinjiang), MN, RU (Buryatia, Chita, Yakutia), TJ, Tib.; North Africa: MA. Oriental Region: IN (Kashmir). UA: Cherkasy, Crimea, Kharkiv, Kherson, Kyiv, Poltava and Zaporizhzhya Regions.

Adults feed on flowers of *Achillea millefolium* (Verves, 1975), *Aegopodium podagraria*, *Matricaria chamomilla*, *Scleranthus annuus*, *S. perennis* (Draber-Mońko, 1969) on sandy areas; flying period from May to August (Verves, 2006).

Material examined: Kyiv Region: Rokytne District: Busheve village, N 49°39', E 30°35', open cast, 27.07.2012, 1 ♂ (Yu. Verves).

### 32. *Miltogrammidium rutilans* (Meigen, 1824)

Distribution: Palaearctic: Europe: AT, HR, CZ (Moravia), FR, DE, HU, IT, MT, PL, RU (Leningrad Region), SK, UA; Asia: AM, CN (Neimenggu), CY, KZ, RU (West Siberia), TJ, TM, UZ. UA: Cherkasy, Chernigiv\*, Crimea, Dnipropetrovsk, Kherson, Khmelnytsky, Kirovograd, Kyiv and Poltava Regions.

High xerophilous species (Stackelberg, 1962). Flies feed at flowers *Thymus serpyllum* and *Tripleurospermum inodorum* (Draber-Mońko, 1969, 1973).

Material examined: Chernigiv Region: Borzna District: Yaduty, Biological Station of Nizhyn University, sand-pit in pine forest, 8.07.2000, 1 ♂ (Yu. Verves). Crimea: Bakhchisaray District: Beregove village, sandy area, 23-24.08.2001, 3 ♂; 8.08.2004, 1 ♀ (Yu. Verves); Theodosia municipal government, Lysa bukhta, 14.06.2007, ground road, from nest of solitary bee *Megachile deceptor*, 4 ♀; from nest of solitary bee *Anthidium cingulatum*, pupae were removed 18.06.2011, and 1 ♂, 5 ♀ emerged from pupae 14.07.2011 (A. Fateryga). Kherson Region: Chaplynka District: 50 km S Ascania Nova, loamy coast of Sivash, 24.07.2008, 2 ♂; Genichesk District: coast of Sivash, sandy area, 7.07.1998, 1 ♂ (Yu. Verves).

### 33. *Miltogrammidium taeniatum* (Meigen, 1824)

Distribution: Palaearctic: Europe: BG, HR, CZ (Moravia), FR (continental & Corsica), DE, HU, IT (mainland & Sicily), MK, PL, RS, SK, ES, CH, UA; Asia: AM, AZ, IR, KZ, KG, MN, TJ, TR, TM, UZ. Oriental Region: IN (Delhi, Tamil Nadu), LK. UA: Kherson and Zaporizhzhya Regions.

Psammophilous and thermophilous species; flying period in June-August (Verves, 2006).

### 34. *Rohdendorffomyia ukrainica* Verves, 1978

Distribution: Palaearctic: Europe: UA: Kharkiv Region.

Material examined: Kharkiv Region: Kuryazh, 12.06.1881, 1 ♀ (Yaroshevsky). It is second known specimen of *R. ukrainica*, which label is identical to the same of holotype (deposited in Zoological Institute, RUn Academy of Sciences, St. Petersburg, RUn Federation). This specimen

has not any taxonomy status and deposited in collection of Zoological Museum, Natural History Museum of DK, University of Copenhagen, DK.

### 35. *Apodacra dispar* Villeneuve, 1916

Distribution: Palaearctic: Europe: FR (south part and Corsica), IT, ES, UA; Asia: IL, TM. Afrotropical Region: AO, ZA (Eastern Cape), ZW. UA: Cherkasy\*, Crimea\*, Kherson, Mykolaiv and Zaporizhzhya Regions.

Psammophilic species; in UA flying period recorded from June to August (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, tip of hill "Maryina Gora", ground road, 220 m a. s. l., 3.06.2003, 1 ♂. Crimea: Bakhchysaray District: environs of Berego village, sandy area, 21.08.2001, 1 ♂. Zaporizhzhya Region: Akymivka District: Altagir village, sandy area, 23.08.1997, 1 ♂, 1 ♀; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 26.08.1997, 1 ♂ (Yu. Verves); Melitopol City, park, 27.06.1981, 1 ♂ (S. Dzhabarov).

### 36. *Apodactra pulchra* Egger, 1851

Distribution: Palaearctic: Europe: AT, CZ, FR (incl. Corsica), DE, HU, IT, PL, SK, UA; Asia: CN (Neimenggu), IL, TJ, TR. UA: Cherkasy, Crimea\* and Kyiv Regions.

Flies prefer sandy areas, especially on river banks (Povolný & Verves, 1997); were collected in northern PL in area with many sandy dunes with numerous nests of sphecids wasps *Bembix rostrata*, *Miscofus bicolor*, *Bembecinus tridens*, and pompilid wasp *Pompilius cinereus* (Szpila & Pape, 2005). In UA adult flies were collected in June – September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Zmiyini Is., coast of Kaniv lake, 8.06.2006, 1 ♂ (A. Drozdovska). Crimea: Bakhchysaray Region: Berego village, sandy area, 3.08.2004, 1 ♀ (Yu. Verves).

### 37. *Apodacra seriemaculata* Macquart, 1854

Distribution: Palaearctic: Europe: AT, FR (incl. Corsica), HU, IT, RO, ES, UA; Asia: IR, IL, RU (North Caucasus), TR, TM. UA: Cherkasy, Crimea\*, Kharkiv and Mykolaiv\* Regions.

Larvae were found in a nest of sphecids wasp *Tachysphex panzeri*, where feed the paralyzed acrids (Grandi, 1961). Imagoes prefer sandy areas; collected in June – August (Verves, 2006).

Material examined: Crimea: Bakhchysaray Region: Berego village, loam sea shores, 15.08.1996, 1 ♀; sandy area, 1.08.2004, 1 ♂; Lenino District: Kazantip State Reservation, 26.07.2007, 1 ♀ (Yu. Verves). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 7.07.1987, 1 ♂ (S. Zrazhewsky).

### 38. *Oebalia cylindrica* (Fallén, 1810)

Distribution: Palaearctic: Europe including British Is. and Fennoscandia; Asia: MN, RU (southern Siberia). UA: Cherkasy, Kharkiv, Kherson and Kyiv Regions.

Larvae are inquilines of nests of such sphecids wasps in stems of raspberries (*Rubus idaeus*): *Crossocerus annulipes* (Tiensuu, 1939), *C. capitatus* (Kramer, 1920); *C. cinxius* (Baer, 1921; Kramer, 1920), *Ectemnius cephalotes* (Lundbeck, 1927), *Rhopalum coarctatum* (Tolstova, 1962), *Trypoxylon attenuatum* (Tiensuu, 1939). Adult flies feed on excreta of aphid *Aphis sambuci* (Draber-Mońko, 1973), and flowering plants, prefer forests and bushes, where fly were observed from June to September (Emden, 1954; Verves, 2006). From letter of Dr. R. Richet (19.03.2011): "Dear all, in February 1991, my brother-in-law found some pupae in a piece of wood in an old wall with the nest of Hymenoptera (I think a *Megachile*). The little pupae have given a few adults of *Oebalia cylindrica* and the 2 biggers, 2 females of *Macronychia dolini*".

Material examined: Kyiv City: Golosieve District: Baykove Cementery, 13.07.2003, 1 ♀ (Yu. Verves); Uralska street, 3-6.07.2009, 2 ♂ (A. Drozdovska); Vasylkivska street 33, yard, 26.06.2009, 1 ♂; Vasylkivska street 98, yard, 10.07.2002, 2 ♀ (Yu. Verves).



**39. *Oebalia rossica* Rohdendorf, 1963**

Distribution: Palaearctic: Europe: RU (Leningrad and Moscow Regions), UA; Asia: MN, RU (Altai, Kunashir I., Primorye). UA: Chernigiv Region.

**40. *Oebalia unistriata* Rohdendorf, 1963**

Distribution: Palaearctic: Europe: HU, PL, NL, UA; Asia: KZ, MN, RU (southern Siberia). UA: Chernigiv Region.

Flies feed on flowers of *Pastinaca sativa* (Draber-Mońko, 1973), prefer mesophytic bushes; flying period from June to August (Verves, 2006).

**41. *Ptychoneura minuta* (Fallén, 1810)**

Distribution: Palaearctic: Europe northwards to NO and Leningrad Region, including British Islands; Asia: JP (Hokkaido), RU (southern Primorye). Nearctic: CA (Nova Scotia, Ontario, Quebec), US (Maine). UA: Cherkasy, Kyiv & Poltava Regions.

Larvae are developed in nests of sphecoid wasps *Crossocerus cinxius* Dahlb. (Kramer, 1917), *Rhopalum clavipes* (Lomholdt, 1976; O'Connor & Ronayne, 2003), *R. coarctatum* (Lomholdt, 1976). Adults feed on excreta of aphid *Chaitophirus capreae* at leaves of *Salix cinerea* (Draber-Mońko, 1973). Flies were collected in mesophytic bushes and forests from the middle of May and to the end of August (Emden, 2954)

Material examined: Kyiv City: Golosieve District: Dyky I. at Dnipro, sandy area, N 50°17'02", E 30°39'22", 30.06.2011, 1 ♂ (Yu. Verves).

**42. *Amobia oculata* (Zetterstedt, 1844)**

Distribution: Palaearctic: Europe northwards to NO, SE and Karelia; Asia: JP (Honshu), KZ, KP, KR., RU (Altai, Chita & Amur Regions, Khabarovskiy Kray, Primorye), TR; North Africa: DZ. Nearctic: CA (British Columbia, Labrador, New Brunswick, Ontario), US (Arizona, California, Colorado, GE, Kansas, Maine, Maryland, Minnesota, Missouri, New Hampshire, New York, North Carolina, Pennsylvania, Wisconsin, Wyoming). Oriental Region: NP, TW. UA: Cherkasy, Chernigiv, Dnipropetrovsk & Kyiv Regins.

Larvae are cleptoparasites (inquilines) in nests of sphecoid wasps *Ammophila sabulosa* (Artamonov, 1988), *Cerceris halone* (Byers, 1962, 1978), *Isodontia mexicana* (Medler, 1965), *Rhopalum clavipes* (Pakalniškis & Podénas, 1992), *Trypargilum aldrichi* (Krombein, 1967), *T. clavatum* (Krombein, 1967), *T. lactitarse* (Krombein, 1967; Medler, 1967), *Trypoxylon aldrichi* (Evans, 1973), *T. figuluus* (Pakalniškis & Podénas, 1992), *T. frigidum* (Krombein, 1967; Medler, 1967), *Trypoxylon lactitarse* (Medler, 1967), *T. obsonator* (Kurahashi, 1973), *T. politum* (Allen, 1926; Downing, 1996; Rau, 1928), eumenid wasps *Ancistrocerus adiabatus* (Krombein, 1967), *A. antilope* (Fye, 1965; Krombein, 1967), *A. catskill* (Krombein, 1967), *Anterhynchium flavomarginatum* (Itino, 1986, 1988, 1997), *A. micado* (Kurahashi, 1973), *Ectemnius stirpicola* (Krombein, 1960), *Eumenes decoratus* (Kurahashi, 1973), *E. rubrofemoratus* (Kurahashi, 1973), *Euodynerus dantici* (Itino, 1988, 1997), *E. leucomelas* (Fye, 1965), *Odynerus crassicornis* (Draber-Mońko, 1966; Mihályi, 1979), *Orancistrocerus drewseni* (Itino, 1986, 1988, 1997), *Pararrhynchium ornatum* (Itino, 1988, 1997), *Rhynchium haemorrhoidale fukaii* (Kurahashi, 1973), *Stenodynerus captivus* (Kurahashi, 1973), *S. frauenfeldi* (Kurahashi, 1973), *Symmorphus albomarginatus* (Krombein, 1967), *S. cristatus* (Evans, 1973). Flies feed at different flowering plants, aphid's excreta, sweat of man, mucous secrets from mouth and nose of hoof animals. This species is distributed in mesophytic bushes, parks, gardens; flying period from mid-May to end of September (Verves, 2006).

Material examined: Kyiv City: Golosieve District: Dyky I. at Dnipro, sandy area, N 50°17'02", E 30°39'22", 30.06.2011, 1 ♂ (Yu. Verves).

**43. *Amobia pelopei* (Rondani, 1859)**

Distribution: Palaearctic: Europe: AT, CZ (Moravia) FR, DE, HU IT, PL, CH, UA; Asia: AF, IL, JP, JO, RU (Siberia, Far East), Transcaucasia, TM, UZ. Afrotropical: MW, ZA (KwaZulu-Natal), ZW. UA: Cherkasy\*, Crimea and Kyiv Regions.

Larvae known as inquilines (= cleptoparasites) in the argillaceous pitcher-formed nests of sphecids *Chloridea* sp. (Zumpt, 1961), *Sceliphron destillatorius* (Draber-Mońko, 1966), *S. omissum* (Rohdendorf, 1935), *S. spirifex* (Baer, 1921; Zumpt, 1961) and eumenids *Eumenes* sp., *Delta latreillei petiolare*, *Rhynchium atrium* (Kurahashi, 1970). Imagoes frequent sandy xerophytic areas (Povolný & Verves, 1997).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, 1-10.06.2001, from pupae collected in nest of *Sceliphron destillatorius*, 1 ♂, 3 ♀ (V. Gorobchysyn). Crimea: Kerch District: Kurortnoye village, 06.2005, from nest of *S. destillatorius*, 2 ♂; Theodosia municipal government, Karadagh Natural Reserve, Biological Station, 2002, from nest of *S. destillatorius*, 2 ♂, 1 ♀; Tarkhankut peninsula, Kipchak gully, 07.2007, from nest of *S. destillatorius*, 2 ♂, 1 ♀; Yalta District: Nikita village, from nest of *Sceliphron destillatorius*; pupae were removed in 2010, imago emerged 12-22.06.2011, 2 ♂ (A. Fateryga). Kyiv City: Golosieve District: "Didorovsky" pond, humid banks, 9.08.2002, 1 ♀ (Yu. Verves).

**44. *Amobia signata* (Meigen, 1824)**

Distribution: Palaearctic: Europe, including Azores, British Is., Fennoscandia; Asia: AM, AZ, CN (Shaanxi, Sichuan, Xinjiang), CY, KZ, KG, MN, RU (Chita Region, Primorye), TJ, TR, TM, UZ; North Africa: DZ, ES (Canary Is.), LY, MA, TN. Oriental Region: IN (Jammu & Kashmir). UA: Cherkasy, Chernigiv\*, Crimea, Kharkiv, Kyiv and Poltava Regions.

Larvae are inquilines of nests which built as earthen pitchers or in stems of plants, of different aculeate hymenopters. The list of hosts such: Eumenidae: *Allodynerus delphinalis* (Lundbeck, 1927), *Ancistrocerus* sp. (Myers, 1927), *A. gazella* (Deeming, 1985), *A. nigricornis*, *A. parietinus* (Weis, 1960), *Discoelius zonalis* (Chevalier, 1923a, b), *Eumenes pomiformis* (Séguy, 1941), *Odynerus* sp. (Malyshev, 1911), *O. reniformis* (Lundbeck, 1927), *O. spinifex* (Pape, 1987); Sphecidae: *Allodynerus delphinalis* (Lundbeck, 1927), *Cerceris* sp. (Pape, 1987), *Clytochrysus lapidarius*, *C. ruficornis*, *Crossocerus walkeri* (Séguy, 1941), *Odynerus reniformis* (Lundbeck, 1927), *Pemphredon lugubris* (Chevalier, 1923a, b), *P. unicolor*, *Psen atratinus* (Séguy, 1941), *Psenulus pallipes* (Chevalier, 1925), *Sceliphron caementarium* (Campadelli et al., 1999), *Sphex spirifex* (Séguy, 1941), *Trypoxylon albitarse* (Lundbeck, 1927), *T. attenuatum*, *T. figulus* (Séguy, 1941); Apidae: *Andrena cineraria*, *A. fulvida*, *A. haemorrhoea*, *Megachile centuncularis* (Séguy, 1941), *M. rotundata* (Pape, 1987), *Osmia atricornis*, *O. rufa* (Séguy, 1941). Adult flies prefer mesophytic bushes and parks, feed on flowers and excreta of aphids; in UA flying period is continued from the end of March to the beginning of October (Verves, 2006).

Material examined: Chernigiv Region: Koryukivsky District: environs of Gutyshe village, near pond, 3-7.07.2003, 1 ♀ (L. Khrokalo & A. Drozdovska). Crimea: Lenino District: Kazantip State Reservation, 26 & 29.07.2007, 1 ♂, 1 ♀ (Yu. Verves); Simferopol District: Ayan road, 1-3.06.2007, from nest of of eumenid wasp *Ancistrocerus nigricornis*, 3 ♂; from nest of eumenid wasp *Gymnomerus laevipes*, pupae collected in 2007, reared 05.2008, 1 ♂, 1 ♀ (A. Fateryga); Simferopol City, from nest of eumenid wasp *Euodynerus disconotatus*, 12.05.2011, 3 ♀ (S. Ivanov); Theodosia municipal government, Lysa bukhta, pupae collected in 2007, reared 05.2008, from nest of of eumenid wasp *Katamenes flavigularis*, 3 ♂; Yalta District: "Mys Martyan" Reserve, 13.07.2005, from nest of eumenid wasp *Ancistrocerus auctus*, 1 ♂, 1 ♀ (A. Fateryga). Kyiv City: "Theophania" park, 19.06.2013, 1 ♀; Kyiv Region: Kyiv-Svyatoshyn District: 2-4 km Irpin City, 2-4 km E, forest nr bog, 26.04.2003, 1 ♀ (Yu. Verves). Poltava Region: Pyryatyn District: Grabarivka village, meadows near Ruda river, 15.07.2009, 1 ♀ (Yu. Verves).

**45. *Hilarella hilarella* (Zetterstedt, 1844)**

Distribution: Palaearctic: Europe, including British Is. (England) and Fennoscandia; Asia: KZ, MN, RU (south Siberia); North Africa: ES (Canary Is.). Nearctic Region: everywhere.

Afrotropical Region: TD. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Donetsk, Kharkiv, Kherson, Kyiv, Lugansk\*, Odesa, Poltava, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Larvae are inquilines (cleptoparasites) of nests of different solitary wasps, viz: Pompilidae: *Aporinellis wheeleri*, *Episyron quinquenotatus* (Kurczewski et al., 1988; Spofford & Kurczewski, 1992; Spofford et al., 1989), Sphecidae: *Ammophila aberti* (Hicks, 1932a), *A. dysmica* (Rosenheim, 1987), *A. harti* (Spofford & Kurczewski, 1990, 1992), *A. placida* (Allen, 1926; Parker, 1915), *A. pictipennis* (Allen, 1926; Strandtmann, 1945), *A. sabulosa* (Teschner, 1959; Tiensuu, 1939;), *A. urnaria* (Spofford & Kurczewski, 1990, 1992; Spofford et al., 1989), *Astata nubecula* (Evans, 1970), *Ectemnius continuus* (Newcomer, 1930), *Philanthus gibbosus* (Cazier & Mortensen, 1965; Reinhard, 1924, 1929), *Podalonia argentifrons* (O'Brien, 1983), *P. luctuosa* (Hicks, 1932b; Newcomer, 1930; O'Brien & Kurczewski, 1982), *P. occidentalis* (Evans, 1987; Murray, 1940;), *P. communis* (Evans, 1970), *P. violaceipennis* (Allen, 1926; Parker, 1915;), *Sphecius speciosus*, *Sphex ichneumoneus* (Spofford & Kurczewski, 1992), *Steniolia obliqua* (Evans, 1970; Evans & Gillaspay, 1964), *Tachysphex tarsatus*, *T. terminatus* (Kurczewski, 1991; Spofford & Kurczewski, 1990, 1992; Spofford et al., 1989). ♀ of fly pursue the ♀ of pompilid wasp and deposit active maggots on the paralyzed insects or spiders when it was laid aside by the wasps, preparatory to opening its nest (Allen, 1926; Kurczewski et al., 1988) or alight at the edge of the vertical opening of the burrows of wasps and deposited several maggots on the edge (Parker, 1915). Females have a very changeable behaviour during the larviposition: they can larviposit at ride or abandoned prey of wasps or in entrance of burrows of hosts etc (Spofford & Kurczewski, 1990, 1992). Flies prefer sandy areas near river banks, xerophytic borders and clearing of forests and parks, sides of ground roads (Verves & Khrokalo, 2006a). In UA flying period is continued from the end of April to the beginning of October; flies feed on aphids' excreta or (rarely) on flowers (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, yard, from pupae collected in ground nest of *Ammophila sabulosa*, 10.06.2010, 1 ♂, 1 ♀ (Yu. Protzenko). Chernigiv Region: Borzna District: environs of Yaduty village, Biological Station of Nizhyn University, pine forest near Trubin lake, 8.07.2000, 1 ♀ (Yu. Verves). Kyiv City: Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05. & 27.06.2008, 5 ♂. Golosieve District: Kozacha street, on leaves & walls, 7.07.2005, 1 ♂; Sovky hole, coast of pond, humid meadow, 29.08.2002, 1 ♂; Williams street, dry meadows, 19.08.2002, 3 ♂; Solomensky District: Strazhesko Hospital territory, at roads & leaves 21-27.8.2003, 3 ♂ (Yu. Verves). Kyiv Region: Boryspil District: Rozhny village, bushes at coast of Dnipro, 15-22.08.1999, 12 ♂; Kyiv-Svyatoshyn District: Irpin City, 2-4 km E, forest near bog, 26.04.2003, 4 ♂; Moshchun village, humid meadows near forest stream, 8.09.2003, 1 ♂; Obukhiv District: Tatzenky village, 3 km S, at leaves and ground at border of pine forest nr lake, 14.09.2003, 2 ♀; Velyki Dmytrovychi village, sandy area, 4.07.1994, 2 ♂; Rokytno District: Busheve village, N 49°39', E 30°35', open cast, 27.07.2012, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: environs of Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska). Poltava Region: Pyryatyn District: Bilotzerkivtzi village, locality Murentzeve, 15.08.2010, 1 ♀ (O. Tkachenko). Sumy Region: Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 1 ♀ (Yu. Protzenko).

#### 46. *Hilarella stictica* (Meigen, 1830)

Distribution: Palaearctic: Europe, except for British Is.; Asia: AM, AZ, CN (Hebei, Neimenggu, Shanxi), KZ, MN, RU (Altay and Chita Region), North Africa: DZ. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Kharkiv, Kherson, Kyiv, Lugansk, Lviv, Odesa\*, Poltava, Sumy\*, Ternopil and Zaporizhzhya Regions.

Larvae in nests of sphecids wasps *Ammophila sabulosa* (Baer, 1921; Maneval, 1929), *A. heydeni* (Gorobchichin, 2005; Grandi, 1954; Oehlke, 1970; Séguy, 1941), *Bembix integra* (Séguy, 1941), *Podalonia hirsuta* (Bonelli, 1969; Gorobchichin, 2005). *Sphex albicestus* (Ferton, 1901), *S. subfuscatus* (Ferton, 1902). Flies prefers dry sandy areas, xero- and mesophytic meadows, borders and clearing of forests and parks, sides of ground roads (Verves & Khrokalo, 2006a). Imago feed on different flowering plants; in UA flying period is continued from the beginning of May to the end of September (Verves, 2006).

Material examined: Crimea: Bakhchysaray City, stoned hill, 400 m o. s. l., 12.08.1996, 1 ♂; Bakhchisaray District: Beregove village, sandy area, 11-13.08.1996, 1 ♂ (Yu. Verves). Kyiv City:



Desna District: “Druzhby Narodiv” park, sandy coast of Dnipro & dry meadows, 1.07.2001, 1 ♂; 8.07.2005, 3 ♂; 30.07.2008, 3 ♂; Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 4 ♂; Golosieve District: Baykove Cemetery, 30.09.2003, 1 ♂; Dyky island at Dnipro, sandy area, N 50°17'02”, E 30°39'22”, 30.06.2011, 1 ♂; Prospect Nauki street, hills “Lysa Gora”, bushes, 19.08.2004, 1 ♀; Williams street, dry meadows, 14-28.07.2001, 5 ♂, 1 ♀; 12-19.08.2002, 11 ♂, 3 ♀; (Yu. Verves). Kyiv Region: Boryspil District: Rozhny village, bushes at coast of Dnipro, 15-21.08.1999, 3 ♂, 4 ♀; Brovary District: Zazymya village, 5 km N, meadows near Desna, 1.08.2001, 1 ♂; Myronivka District: Tulyntzy village, feather-grass steppe with bushes, 4.06.2003, 2 ♂; Obukhiv District: Velyki Dmytrovychi village, sandy area, 4.07.1994, 2 ♂; 4-8.07.1999, 8 ♂, 1 ♀ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 2 ♂, 3 ♀; Provallya village, 27.07.2008, 1 ♀ (A. Drozdovska). Odesa Region: Ismail District: Maly Taman I., 15. 07.2003, 1 ♂; Suvorove village, 20-23.08.2009, 1 ♂, 1 ♀ (V. Corobchyshyn). Poltava Region: Grebinky District: Kulazhyntzy village, meadows, 13 & 15.08.2010, 3 ♂; Pyryatyn District: Grabarivka village, meadows nr Ruda river, 15.07.2009, 3 ♂, 4 ♀; Keybalivka village, meadows at bank of Uday river, 11-17.07.2009, 4 ♂, 2 ♀; Kharkivtzy village, 2 km S, locality “Velyki Solontzi”, 13-14.07.09, 1 ♀; Lelyaky village, meadows at bank of Uday river, 12.08.2010, 1 ♀; Povstyn village, locality “Burty”, meadows, 12.07.2009, 2 ♂, 1 ♂; *ibid.*, Zhovtneve village, meadows, 13.07.09, 1 ♂ (A. Drozdovska, V. Gorobchyshyn, O. Tkachenko, Yu. Verves). Sumy Region: Sumy District: Mogrytzya village, 7-9.08.2009, 18 ♂, 18 ♀; Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 1 ♀ (Yu. Protzenko).

#### 47. *Paragusia elegantula* (Zetterstedt, 1844)

Distribution: Palaearctic: Europe, except for British Is.; Asia: AM, CN (Neimenggu, Xinjiang), EG (Sinai), KZ, KG, MN, TJ, TR, TM, UZ. UA: Cherkasy, Chernigiv, Crimea, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk\*, Mykolaiv\*, Poltava, Volyn and Zaporizzhya Regions.

Larvae developed in nests of ants *Formica cinerea*, *F. fusca* (Kramer, 1917), and sphecid wasp *Bembecinus hungaricus* (Zolda, 2001). Flies prefer sandy areas (Stackelberg, 1962). In UA flying period is continued from the end of May to the beginning of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Zmiyini Is., coast of Kaniv lake, 8.06.2006, 1 ♀ (A. Drozdovska). Kyiv City: Golosieve District: Dyky island at Dnipro, sandy area, N 50°17'02”, E 30°39'22”, 30.06.2011, 3 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: environs of Nova Kindrashivka village, sandy area, 1.08.2008, 4 ♂, 1 ♀ (A. Drozdovska). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 12.06.1985; 20.06.1986; 4.-27.07.1987, 5 ♂, 5 ♀ (S. Zrazhewsky). Zaporizzhya Region: Pryazovske District: Stepanivka village, sandy coast of Azov sea, 20.08.1997, 1 ♂ (Yu. Verves).

#### 48. *Paragusia multipunctata* (Rondani, 1859)

Distribution: Palaearctic: South and Mid Europe apart of British Is.; Asia: AM, CN (Neimenggu); CY, EG (Sinai), GE, IR, IL, KZ, MN, SA, SY, TM, UZ. North Africa: ES (Canary Is.), EG. Oriental Region: VN (Kano et al., 1999). Afrotropical Region: BW, KE, LS, NA, SN, ZA (Eastern Cape, Gauteng, North-West Province), TZ, ZW. Madagascan Region: MG. UA: Crimea, Dnipropetrovsk, Kyiv & Sumy\* Regions.

Larvae in nest of sphecid wasp *Bembix integra*, *Sphex kirbii*, *Tachysphex nitidus* (Séguy, 1941), *T. panzeri* (Grandi, 1961), *T. pompiliformis* (Séguy, 1941). Imago at sandy strip in feather-grass steppe at the tips of hills, at dry meadows and stones in June – August (Verves, 2000b, 2003).

Material examined: Crimea: Bakhchysaray District: Berego, loam sea shores, 14-16.08.1996, 4 ♂ (Yu. Verves). Kyiv City: Desna District: “Druzhby Narodiv” park, dry meadows, 1.07.2001 & 8.07.2005, 2 ♂ (V. Gorobchyshyn); Dnipro District: Moscow bridge, 2 km N, island on Dnipro, & 29.08.2008, 2 ♂; Golosieve District: Williams street, sandy area, 12-19.08.2002, 2 ♂; Solomensky District: Strazhesko Hospital territory, sandy area, 21-27.08.2003, 1 ♂ (Yu. Verves). Sumy Region: Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 2 ♂ (Yu. Protzenko).



**49. *Paragusia pluriseta* (Pandellé, 1895)**

Distribution: Palaearctic: Europe: FR, IT, UA; Asia: IL, TM. UA: Crimea.

Larvae in nests of sphecid wasp *Spex albicestus* (Séguy, 1941).

Material examined: Crimea: Alushta City, sandy area, 14.07.1976, 3 ♂; Alushta City, 9 km W, oak forest, 400 m a. s. l., at clayey ground road, 15.06.-18.08.1976, 35 ♂, 8 ♀; (Yu. Verves).

**50. *Paragusia pseudaperta* (Séguy, 1941)**

Distribution: Palaearctic: Europe: FR, IT, UA; Asia: IL. UA: Crimea.

The female while following a spider wasp dragging a paralysed acridid grasshopper, thus testifying to a kleptoparasitic habit (Richet et al., 2013).

Material examined: Crimea: Alushta City, 9 km W, oak forest, 400 m a. s. l., at clayey ground road, 15.06.-18.08.1976, 10 ♂, 3 ♀; Bakhchisaray City, stone near Khan Palace, 13.08.1996, 1 ♂ (Yu. Verves).

**51. *Taxigramma heteroneura* (Meigen, 1830)**

Distribution: Palaearctic: Europe, except for British Is.; Asia: AF, CN (Neimenggu), CY, EG (Sinai), IR, IL, KZ, KG, MN, RU (Siberia and Far East), SY, TJ, Transcaucasia, TR, TM; North Africa: DZ, ES (Canary Is.), EG, MA. Nearctic: CA (British Columbia, Manitoba, Northwest Territories, Ontario, Yukon Territory), MX (Baja California Norte, Baja California Sur, México, Sonora), US (Arizona, Arkansas, California, Colorado, Connecticut, District of Columbia, Florida, Idaho, Illinois, INna, Maryland, Massachusetts, Michigan, Mississippi, Montana, Nevada, New Jersey, New MX, New York, North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Texas, Utah, Virginia, Washington, Wisconsin, Wyoming). Oriental Region: IN (Tamil Nadu). UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk, Lviv, Mykolaiv, Odesa, Poltava, Sumy, Ternopil, Vinnytsya, Volyn, Zaporizzhya, Zakarpattia and Zhytomyr Regions.

Larvae are developed in nests of sphecid wasps *Ammophila* sp. (Pape, 1987), *Eucerceris fulvipes* (Evans, 1970; Evans & Gillasp, 1964), *Podalonia luctuosa* (Newcomer, 1930), *P. occidentalis* (Evans, 1987), *Steniolia obliqua* (Evans, 1970; Evans & Gillasp, 1964), *Tachysphex acutus* (Kurczewski, 1989), *Tachysphex pechumani* (Kurczewski, 2008), *T. pompiliformis* (Newton, 1956), *T. tarsatus* (Kurczewski, 1989, 1991; Spofford & Kurczewski, 1992). Flies prefer xerophilous sandy areas; in UA flying period is continued from the beginning of May to the middle of October (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, tip of hill "Maryina Gora", ground road, 220 m a. s. l., 3.06.2003, 2 ♂ (Yu. Verves); yard, 24.06.2006, 1 ♀ (V.Gorobchyshyn). Crimea: Lenino District: Kazantip State Reservation, 27.07.2007, 1 ♂ (Yu. Verves). Kyiv City: Desna District: "Druzhby Narodiv" park, sandy coast of Dnipro & dry meadows, 1.07.2001 & 30.07.2008, 2 ♂, 1 ♀; Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 2 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 4 ♀ (A. Drozdovska). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 4.07.1987 & 22.05.1988, 3 ♂, 1 ♀ (S. Zrazhewsky). Poltava Region: Pyryatyn District: Bilotzerkivtzi village, locality Murentzeve, 15.08.2010, 1 ♀ (O. Tkachenko); Deymanivka village, 16.07.2005, 1 ♀; Kharkivtzy village, 2 km S, locality "Velyki Solontzi", 13-14.07.2009, 1 ♂ (Yu. Verves); Lelyaky village, bank of Uday river, 15 & 17.07.2005, 3 ♂; Povstyn village, locality "Burty", meadows, 12.07.2009, 1 ♂ (V. Gorobchyshyn); Usivka village, meadows, 16.07.2009, 1 ♂ (Yu. Verves). Sumy Region: Sumy District: Mogrytzya village, 7-9.08.2009, 1 ♂, 2 ♀ (Yu. Protzenko). Zaporizzhya Region: Pryazovske District: Stepanivka village, sandy coast of Azov sea, 24-26.08.1997, 1 ♂, 2 ♀ (Yu. Verves).

**52. *Metopia argentata* Macquart, 1850**

Distribution: Palaearctic: Europe northern to FL; apart of British Is. Asia: CN (Hebei, Sichuan), KP, KR, MN, RU (Far East, West Siberia), Tib., Oriental Region: IN (Jammu & Kashmir),

ID (Sulawesi), TW. UA: Cherkasy, Chernigiv, Dnipropetrovsk, Ivano-Frankivsk, Kherson, Kyiv, Lviv, Poltava & Sumy Regions.

Larvae bred from a nest of pompilid wasp *Barazonus lacerticida* (Rohdendorf & Verves, 1980). Flies feed on aphids excreta exclusively (Artamonov, 1993). This species prefers the bushes on sandy banks of different reservoirs. In UA flying period is continued from the beginning of May to the end of September (Verves, 2006).

Material examined: Chernigiv Region: Borzna District: Makoshyno village, right coast of Desna, meadows, 20.08.2000, 3 ♂, 1 ♀ (Yu. Verves). Kyiv City: Desna Distrct: "Druzhby Narodiv" park, meadows nr lake, 8.07.2005, 1 ♀; "Lisova" subway-station, 5 km E, mixed forest & bushes near lake Lisove, 20.07.2004, 1 ♀; Dnipro District: Rayduzny massive, bushes on bank of Malynivka Lake, 23.06.2005, 1 ♀; Golosieve District: Baykove Cementery, 13.7.-7.08.2003, 3 ♂, 1 ♀; "Didorovsky" pond, humid banks, 28.08.1999, 1 ♂; National Exhibition Centre, bushes, 27.08.1999, 1 ♂; Sovky hole, coast of pond, humid meadow, 31.07.2002, 1 ♀; Vasylykivska street 33, yard, 25.06.2008, 1 ♂; Vasylykivska street 98, yard, 29.07.2002, 1 ♂; Podil District: Shevchenko square, humid meadow nr pond, 3-4.06.2000 & 15.07.2005, 3 ♂;. Kyiv Region: Boryspil District: Rozhny village, bushes at coast of Dnipro, 15-22.08.1999, 15 ♂, 8 ♀; Obukhiv District: Tatzenky village, 3 km S, at leaves and ground at border of pine forest nr lake, 14.09.2003, 1 ♀ (Yu. Verves). Poltava Region: Pyryatyn District: Lelyaky village, bank of Uday river, 15 & 21.07.2005, 3 ♂, 6 ♀; Povstyn village, locality "Burty", meadows, 12.07.2009, 1 ♀ (V. Gorobchyshyn). Sumy Region: Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 1 ♀ (Yu. Protzenko); Trostyanetz City, meadows at lake coast, 3.08.1999, 1 ♂ (Yu. Verves). Zhytomyr Region: Ovruch District: Selezivka village, sandy area, 10-13.07.2006, 3 ♀ (Yu. Protzenko).

### 53. *Metopia argyrocephala* (Meigen, 1824)

Distribution: This species is widely distributed in Holarctic, Neotropical and Oriental Regions. UA: Cherkasy, Chernigiv, Chernivtsi, Crimea, Dnipropetrovsk, Donetsk, Ivano-Frankivsk, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk\*, Lviv, Mykolaiv, Odesa, Poltava, Sumy, Ternopil, Vinnytsya, Zakarpattya, Zaporizhzhya and Zhytomyr Regions.

Larvae are inquilines of different aculeate hymenopters, viz: Apidae: *Colletes daviesanus* Smith (Bradley, 1924), *Dialictus pruinosus* (Melander & Brues, 1903), *Halictus sexcinctus* (Meyer-Holzapfel, 1986; Riedel, 1901), *Lasioglossum* sp. (Kurahashi, 1970), *L. coriaceum* (Riedel, 1901), *L. zephyrum* (Batra, 1965); Eumenidae: *Stenodynerus fundatiformis* (Krombein, 1964); Pompilidae: *Anoplius splendens* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *A. tenebrosus* (Alm & Kurczewski, 1984), *Episyron quinquenotatus* (Spofford & Kurczewski, 1992; Spofford et al., 1989); Sphecidae: *Ammophila abeni* (Evans, 1959; Hicks, 1932a), *A. campestris* (Baerends, 1941a, b; Grandi, 1954), *A. communis*, *A. luctuosa* (Spofford & Kurczewski, 1992), *A. pubescens* (Charykuliev & Myartzeva, 1964; Gorobchishin, 2005; Lomholdt, 1975), *Anacrabro ocellatus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *Ancistromma distincta* (Evans, 1958b), *Aphilanthops frigidus* (Evans, 1962), *A. subfrigidus* (Evans, 1970), *Argorytes fargei* (Fahlander, 1954), *Astata unicolor* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *Bembix amoena* (Evans, 1966), *B. integra* (Grandi, 1926), *B. rostrata* (Baer, 1921; Charykuliev & Myartzeva, 1964; Larsson, 1986; Peeters, 2008), *Bicyrtes fodiens* (Evans, 1966), *Cerceris arenaria* (Alfken, 1899; Chevalier, 1926), *C. californica* (Linsley & MacSwain, 1956), *C. halone* (Byers, 1978), *C. julii*, *C. rubida* (Grandi, 1926), *C. rufopicta* (Hook & Evans, 1991; Krombein, 1950, 1953), *C. rybyensis* (Alfken, 1899; Séguy, 1941), *Crabro advena*, *C. largior* (Evans et al., 1980), *C. monticola* (Evans et al., 1980; Kurczewski & Peckham, 1982; Spofford & Kurczewski, 1992; Spofford et al., 1989), *C. peltarius*, *Crossocerus elengatulus* (Séguy, 1941), *C. maculiclypeus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *Enchemicrum australe* Pate (Peckham & Hook, 1994), *Encopognathus* sp., *E. districtus* (Verves, 1979), *Gorytes canalicularis* (Evans, 1966, 1970), *Lyroda subita* (Evans, 1964; Kurczewski & Peckham, 1982; Spofford & Kurczewski, 1992; Spofford et al., 1989), *Mellinus* sp. (Grandi, 1954), *Oxybelus* sp. (Else & Field, 1997), *O. argentatus* (Séguy, 1941), *Oxybelus aztecus* (Peckham, 1985), *O. bipunctatus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *O. exclamans*, *O. fossor*, *O. sparideus* (Peckham, 1985), *O. subulatus* (Peckham, 1977; Peckham et al., 1973), *O. uniglumis* (Peckham et al., 1973; Séguy, 1941), *Philanthus banabacoa* (Genaro & Sánchez, 1992), *P. bicinctus*, *P. crabroniformis* (Evans, 1970; Evans & O'Neil, 1988, Pickering, 2009), *P. gibbosus* (Reinhard, 1924, 1929; Pickering, 2009), *P. pulcher*, *P. sanbornii* (Evans &

O'Neil, 1988), *P. triangulum* (Baer, 1921; Charykuliev & Myartzeva, 1964; Dunk, 1995; Grandi, 1926), *P. ventrilabris*, *P. zebratus* (Evans & O'Neil, 1988), *Podalonia communis* (Evans, 1970; Hicks, 1932b; Krombein, 1953; Newcomer, 1930; Pickering, 2009), *P. luctuosa* (Evans, 1970; Hicks, 1932b; Krombein, 1953; Newcomer, 1930; Spofford & Kurczewski, 1992; Spofford et al., 1989), *P. violaceipennis* (Krombein, 1936), *Prionyx atratus* (Adams, 1915; Evans, 1958a; Pickering, 2009; Williams, 1914), *Sphecius speciosus* (Evans, 1966; Reinhard, 1929; Spofford & Kurczewski, 1992; Strange, 2000), *Sphex atratus* (Newcomer, 1930; Séguy, 1941), *S. ichneumoneus* (Frisch, 1937; Newcomer, 1930; Pickering, 2009; Ristich, 1953; Spofford & Kurczewski, 1992; Spofford et al., 1989), *S. maxillosus* (Gorobchishin, 2005; Oehlke, 1970), *S. rufocinctus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *S. sericeus fabricii*, *S. subtruncatus* (Verves, 1979), *Stenodynerus fundatiformis* (Krombein, 1964), *Tachysphex antennatus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *T. costae* (Deleurance, 1945), *T. tarsatus*, *T. validus* (Spofford & Kurczewski, 1992; Spofford et al., 1989), *Thyreopus peltarius* (Baer, 1921; Hamm & Richards, 1926; Séguy, 1941). The flies larviposit into open aculeate burrows instead of following provisioning females (Else & Field, 1997).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, yard, at vegetation, 9.09.1988, 1 ♂ (S. Zrazhewsky); 7-8.06.2003, 1 ♂, 9 ♀; tip of hill "Maryina Gora", ground road, 220 m a. s. l., 3.06.2003, 1 ♂ (Yu. Verves); Liplyave village, 22.06.2006, 1 ♀ (Yu. Protzenko). Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, pine forest near Trubin lake, 8.07.-24.08.2000, 20 ♂, 33 ♀; Ichnya District: "Trostyanetz" dendrological park, meadows and forest at lake coast, 5-13.08.1999, 5 ♂, 4 ♀ (Yu. Verves). Crimea: Great Canyon, 18.08.2001, 2 ♂ (L. Khrokalo). Kyiv City: Desna District: "Druzhby Narodiv" park, sandy coast of Dnipro & dry meadows, 1.07.2001, 7 ♀; Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05. & 27.06. 2008, 2 ♂, 1 ♀; Golosieve District: "Didorovsky" pond, humid banks, 11.07.2002 & 28.06.2004, 2 ♂, 1 ♀; Prospect Nauki street, hills "Lysa Gora", bushes, 19.08.2004, 1 ♂; Sovky hole, coast of pond, humid meadow, 16.07.2003, 1 ♀; 9.06.2011, 1 ♂; "Theophania" park, 11-19.06.2013, 8 ♂, 3 ♀; Vasylkivska street 33, yard, 25.06.2008, 1 ♂; 27.07.2009, 1 ♂; 27.05.2010, 1 ♀; Vasylkivska street 98, yard, 22.07.-17.08.2002, 11 ♂; Williams street, dry meadows, 19.08.2002, 1 ♂, 1 ♀; Obolon district: unnamed island on Dnipro, N 50°30'25", E 30°31'16", 26.05.2011, 3 ♂; Solomensky District: Strazhesko Hospital territory, at roads & leaves 21-27.8.2003, 3 ♂, 7 ♀ (Yu. Verves). Kyiv Region: Boryspil District: environs of Rozhny village, bushes at coast of Dnipro, 15-22.08.1999, 4 ♂; Kyiv-Svyatoshyn District: Gostomel village, 4 km N, meadows at right bank of Irpin river, 8.07.2001, 1 ♂; Irpin City, 2-4 km E, forest nr bog, 26.04.2003, 1 ♂, 2 ♀; Moshchun village, humid meadows near forest stream, 8.09.2003, 1 ♂; Myronivka District: Tulyntzy village, feather-grass steppe with bushes, 4.06.2003, 2 ♂, 4 ♀; Obukhiv District: Velyki Dmytrovychi village, grass coast of stream, 27.06.1997, 2 ♂; 4.07.1999, 1 ♂; 29.06.2001, 5 ♂; Tatzenky village, 3 km S, at leaves and ground at border of pine forest nr lake, 14.09.2003, 6 ♀; Ukrainka City, 4 km W, at leaves and ground at border of pine forest nr lake, 21.08.2004, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 4 ♂, 7 ♀ (A. Drozdovska). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 4.07.1987 & 20.06.1988, 2 ♀ (S. Zrazhewsky). Odesa Region: Ismail District: Kyslytzya village, 5 km SE, 7. & 9.08.2009, 1 ♀; Maly Taman I., 15. 07.2003, 2 ♀ (Yu. Protzenko); Suvorove village, 20-23.08.2009, 3 ♂, 1 ♀ (V. Corobchyshyn). Poltava Region: Pyryatyn District: Bilotzerkivtzi village, locality Murentzeve, 15.08.2010, 4 ♂, 2 ♀; Deymanivka village, 16.7.2005, 1 ♂; Keybalivka village, meadows at bank of Uday river, 11-17.07.2009, 8 ♂, 3 ♀; Lelyaky village, bank of Uday river, 15-21.07.2005, 1 ♂, 4 ♀; Masalske village, meadows at bank of Uday river, 14.08.2010, 2 ♂; Povstyn village, locality "Burty", meadows, 12.07.2009, 1 ♂; Usivka village, meadows, 10-16.07.2009, 2 ♂, 2 ♀ (A. Drozdovska, V. Gorobchyshyn, O. Tkachenko, Yu. Verves). Sumy Region: Romny City, banks of Romenka river, meadows and bushes, 21-27.08.2009, 2 ♂, 1 ♀ (Yu. Verves); Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 1 ♂; Sumy District: Mogrytzya village, 7-9.08.2009, 3 ♀ (Yu. Protzenko). Zaporizzhya Region: Akymivka District: Altagir village, meadows & bushes, 4-15.06.2008, 1 ♂, 1 ♀ (Yu. Verves). Zhytomyr Region: Ovruch District: Selezivka village, sandy area, 10-13.07.2006, 1 ♀ (Yu. Protzenko).



**54. *Metopia campestris* (Fallén, 1810)**

Distribution: This species is distributed in all over the Holarctic and partly Oriental (CN: Yunnan, IN: Jammu & Kashmir) Regions. UA: Cherkasy, Chernigiv, Chernivtsi, Dnipropetrovsk, Ivano-Frankivsk, Kharkiv, Khmelnytsky, Kirovograd, Kyiv, Lviv, Poltava, Sumy, Vinnytsya, Volyn, Zakarpattia and Zhytomyr Regions.

Larvae areinquilines of nests of different aculeate hymenopters, viz: Apidae: *Andrena* spp., *Halictus* spp. (Verves & Khrokalo, 2006b), *Lasioglossum zephyrum* (Batra, 1980); Eumenidae: *Arachnospila trivialis* (Nielsen, 1932); Pompilidae: *Pompilus* sp. (Lundbeck, 1927), *Episyrcon conterminus* (Kurczewski, 1981); Sphecidae: *Ammophila campestris* (Nielsen, 1933), *Bembecinus hungaricus* (Zolda, 2001), *Cerceris halone* (Byers, 1962, 1978), *Crabro* sp. (Dunk, 1995), *C. advena* (Wcislo, 1986), *C. cribriflifer* (Barrows et al., 1978; Wcislo, 1984; Wcislo et al., 1985), *Gorytes laticinctus* (Lomholdt, 1975), *Larropsis* sp. (Pape, 1987), *Nysson* sp. (Wolf, 1951), *Oxybelus* sp. (Else & Field, 1997), *Philanthus triangulum* (Dunk, 1995), *Spheg ichneumoneus* (Frisch, 1937; Ristich, 1953), *Spheg maxillosus* (Gorobchishin, 2005; Oehlke, 1970), *Spheg rufocinctus* (Lomholdt, 1975). Female enter in open burrows of hosts, where larviposited on prey (Wcislo, 1984). Flies feed on flowering Apiaceae (Draber-Moňko, 1973; Menzel & Ziegler, 2002; Ziegler & Lange, 2001) and prefer bushes, forest borders, mesophitic meadows; in UA flying period is continued from the end of April to the beginning of October (Verves, 2006).

Material examined: Chernigiv Region: Borzna District: environs of Yaduty village, Biological Station of Nizhyn University, pine forest near Trubin lake, 7.07.2000, 1 ♂ (Yu. Verves).

**55. *Metopia grandii* Venturi, 1953**

Distribution: Palaearctic: Europe: AL, CZ (Bohemia), DK, FL, DE, HU, IT, PL, RO\*, RU (Yaroslavl Region), RS, ES, SE, CH (Pape & Merz, 1998), UA, UK (England); Asia: RU (Altay, Amur Region, Chita Region, Primorye), JP (Hokkaido, Honshu). UA: Cherkasy, Chernigiv, Chernivtsi & Zakarpattia Regions.

Flies collected in xerothermic and mesophitic meadows, in bushes; feed on flowers; in UA flying period is continued from the end of May to beginning of September (Verves, 2006).

Material examined: Chernigiv Region: Borzna District: environs of Yaduty, Biological Station of Nizhyn University, coast of Trubin lake, mesophitic meadow, 12.07.2000, 1 ♂ (Yu. Verves).

A specimen from Natural History Museum, London: Romania, nr Calimanesti, banks of river Olt, 26.06.1969, 1 ♀ (R. J. Cogan & R. Vane-Wright). Firstly recorded from Romania.

**56. *Metopia italiana* Pape, 1985**

Distribution: Palaearctic: Europe: AT, CZ, FR, IT, PL, RU (Perm Region), CH, NL, UA; Asia: Tib. UA: Cherkasy\*, Kharkiv, Kyiv, Lugansk\*, Lviv & Sumy\* Regions.

Larvae develop in nests of sphecid wasps *Bembicinus tridens* and *Oxybelus melancholicus*, where feed dead dipterans (Grandi, 1959; Séguy, 1941; Venturi, 1953); adult flies were collected near nests of sphecid wasp *Alysson spinosus* (Draber-Moňko, 1973). Flies collected in xerophitic and mesophitic bushes and meadows; in UA flying period is continued from the end of May to beginning of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: 5 km S of Keleberda village, dry meadow near Kryvi Lakes, 6.06.2003, 1 ♂ (Yu. Verves). Kyiv City: Desna Distret: "Druzhby Narodiv" park, dry meadow, 1.07.2001, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 14 ♂, 37 ♀ (A. Drozdovska). Sumy Region: Vakolovschyna village, dry meadow, 17.06.1992, 1 ♂ (V. Gorobchishyn).

**57. *Metopia staegeri* Rondani, 1859**

Distribution: Palaearctic: Europe, including British Is. and Fennoscandia; Asia: KZ, RU (Altay, Tomsk Region). UA: Cherkasy, Chernigiv, Ivano-Frankivsk, Kyiv, Lugansk\*, Odesa, Poltava\* & Zakarpattia Regions.



Flies prefer mesophytic meadows, bushes and forest borders, flying period is continued from May to September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Krugly I., 15. & 21.07.1986, 3 ♂ (Yu. Verves). Chernigiv Region: Koryukivsky District: environs of Gutyshche, near pond, 3-7.07.2003, 1 ♂ (L. Khrokalo & A. Drozdovska). Kyiv City: Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05. & 27.06.2008, 3 ♂; Golosieve District: Vasylkivska street 33, yard, 7.07.2008, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 2 ♂ (A. Drozdovska). Odesa Region: Ismail District: Maly Taman I., 07.2003, 1 ♂ (Yu. Protzenko). Poltava Region: Pyryatyn District: Lelyaky village, bank of Uday river, 17.7.2005, 2 ♂ (V. Gorobchyshyn).

### 58. *Phrosinella (Casiomyia) persa* (Rohdendorf, 1935)

Distribution: Palaearctic: Europe: RO, UA; Asia: IR, MN, CN (Neimenggu). UA: Donetsk, Kharkiv, Kherson, Mykolaiv\* & Zaporizhzhya Regions.

Flies prefer sandy areas with *Phragmites* bushes on sea shores (Verves et al., 1984). Flying period is continued from June to August (Verves, 2006).

Material examined: Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 4-27.08.1987 & 20.06.1988, 3 ♂, 3 ♀ (S. Zrazhewsky). Zaporizhzhya Region: Berdyansk, sandy spit at Azov Sea, 14-17.08.1994, 2 ♂; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 25.08.1997, 4 ♂ (Yu. Verves).

### 59. *Phrosinella (Euhilarella) sannio* (Zetterstedt, 1838)

Distribution: Europe: FL, NO, RU (Karelia & Leningrad Region), SE, UA; Asia: RU (Kamchatka, Taymyr); North America: CA (British Columbia, Yukon Territory), US (Alaska). UA: Cherkasy Region.

Psammophilous species; in UA flying period is continued from the beginning of May to the middle of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Keleberda village, sandy dunes at coast of Dnipro, 12.05.2004, 1 ♂ (Yu. Verves).

### 60. *Phrosinella (s. str.) nasuta* (Meigen, 1824)

Distribution: Palaearctic: Europe, except for British Is.; Asia: AM, AZ, CN (Neimenggu), IR, KZ, KG, MN, RU (southern Siberia, Far East), TR; North Africa: LY. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Kharkiv, Kherson, Kyiv, Lugansk\*, Odesa, Poltava, Sumy\* and Zaporizhzhya Regions.

Larvae are developed in nests of sphecids wasps *Nitela* sp. (Verves & Khrokalo, 2006b). Adult flies are very psammophilous and xerophilous; feed on excreta of aphids. Flying period in UA is continued from the end of May to the end of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Krugly I., 12.07.1986, 1 ♀; Zmiyini Is., coast of Kaniv lake, 23.05.2003, 1 ♂ (Yu. Verves); 8.06.2006, 1 ♂, 1 ♀ (A. Drozdovska). Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, sand-pit in pine forest, 8. & 11.07.2000, 5 ♂ (Yu. Verves). Kyiv City: Dnipro Region: Hydropark, nr Berizka lake, 22.06.2006, 1 ♀; Solomensky District: Strazhesko Hospital territory, at roads & leaves 21-27.8.2003, 1 ♂, 5 ♀ (Yu. Verves). Kyiv Region: Obukhiv District: Tatzenky, 3 km S, at leaves and ground at border of pine forest nr lake, 14.09.2003, 1 ♂; Rokytno District: Busheve village, N 49°39', E 30°35', open cast, 27.07.2012, 1 ♂, 1 ♀ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂, 1 ♀ (A. Drozdovska). Odesa Region: Ismail District: Suvorove village, 20-23.08.2009, 2 ♂, 2 ♀ (V. Corobchyshyn). Sumy Region: Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 1 ♀ (Yu. Protzenko).

**61. *Sphenometopa fastuosa* (Meigen, 1824)**

Distribution: Palaearctic: Europe: AT, CZ (Moravia), FR (mainland & Corsica), DE, GR, IT, PL, RS, SK, ES, CH, UA; Asia: AM, RU (Dagestan), TM; North Africa: EG. UA: Crimea. Oriental Region: IN (Jammu & Kashmir). Afrotropical Region: KE, Yemen.

Flies prefer stony banks of mountain streams and sea shores (Rohdendorf, 1970) and feed on flowers of *Sedum album* (Macko & Noskiewicz, 1954). In UA flying period is continued from June to August (Verves, 2006).

Material examined: Crimea: Bakhchysaray District: Beregove village, loam sea shores, 14-16.08.1996, 3 ♀; Bakhchysaray City, stoned hill, 400 m a. s. l., 12.08.1996, 1 ♂; Lenino District: Kazantip State Reservation, 19-29.07.2007, 10-30 m a. s. l., sea bank, at stones, 16 ♂, 31 ♀ (Yu. Verves).

**62. *Mesomelena mesomelaena* (Loew, 1848)**

Distribution: South and Mid Europe, apart of British Is.; Asia: CN (Heilongjiang, Neimenggu), RU (Buryatia, Chita Region), KZ, MN, TJ, TM, UZ. UA: Cherkasy, Chernigiv, Dnipropetrovsk, Kharkiv, Kherson, Kyiv, Lugansk\*, Mykolaiv\*, Poltava, Sumy\*, Zaporizhzhya & Zhytomyr Regions.

Larvae bred from head of dead dzheiran antelope *Gazella subgutturosa* (Rohdendorf & Verves, 1980). Flies are common in xerophytic sandy areas from the middle of May to the middle of September, feed on flowers, faeces, aphids' excreta (Verves & Khrokalo, 2006b; Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Krugly I., 10-12.07.1986, 2 ♂ (Yu. Verves); sandy coast of Dnipro, 23.06.1988, 1 ♀ (S. Zrazhewsky). Kyiv City: Desna District: "Druzhby Narodiv" park, meadows nr lake, 30.07.2008, 6 ♂, 4 ♀; Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 3 ♂; Golosieve District: Dyky island at Dnipro, sandy area, N 50°17'02", E 30°39'22", 30.06.2011, 1 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska). Mykolaiv Region: Ochakiv District: Kinburn sandy area, 16.05.2003, 1 ♀ (Yu. Protzenko). Odesa Region: Bilgorod-Bnistrovsky District: Kara Bugas, sandy coast of Black Sea, 2.05.1988, 2 ♂, 1 ♀ (M. Berezovsky). Sumy Region: Vakolovschyna village, dry meadow, 17.06.1992, 1 ♀ (V. Gorobchyshyn). Zaporizhzhya Region: Berdyansk City, sandy spit at Azov Sea, 14-17.08.1994, 1 ♀; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 11-27.08.1997, 17 ♂, 6 ♀ (Yu. Verves).

**63. *Metopodia pilicornis* (Pandellé, 1895)**

Distribution: Palaearctic: Europe: HR, CZ (Moravia), FR, DE, HU, IT (including Sardinia), RU (Volgograd Region), ES, NL, UA; Asia: CN (Hebei, Shanxi), CY, IR, IL, IT (incl. Sardinia), KZ, MN, RU (Chita Region), TJ, TR, TM, UZ; North Africa: DZ. UA: Crimea\*, Kherson, Lugansk\*, Odesa & Zaporizhzhya Regions.

The larvae are inquiline of nests of *Sphex funerarius* (Cerretti & Pape, 2004). Flies prefer sandy areas on river banks (Povolný & Verves, 1997). In UA flying period is continued in June – July (Verves, 2006).

Material examined: Crimea: Theodosia municipal government, Karadagh Natural Reserve, 2.07.2006, 1 ♀ (A. Drozdovska); Lenino District: Kazantip State Reservation, 17-29.07.2007, 26 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: environs of Nova Kindrashivka village, sandy area, 1.08.2008, 3 ♀ (A. Drozdovska). Odesa Region: Ismail District: Kyslytzya village, 15 km SE, 2.08.2009, 1 ♀; Maly Taman I., July 2003, 1 ♂ (Yu. Protzenko).

**64. *Phylloteles pictipennis* (Löw, 1844)**

Distribution: Palaearctic: Europe, apart of British Is. and Scandinavia; Asia: AM, AZ, CN (Sichuan), CY, KZ, RU (West Siberia), TR, TM. Oriental Region: PK, TH. UA: Cherkasy, Chernigiv, Crimea, Kharkiv, Kherson, Kirovograd, Kyiv, Lugansk, Mykolaiv, Odesa, Poltava, Zaporizhzhya and Zhytomyr Regions.

The larvae are developed in nests of sphecoid wasp *Philanthus triangulum* (Charykuliev & Myartzeva, 1964). In northern CY this species bred from nests with eggs of loggerhead (*Caretta*

*caretta*) and green sea turtle (*Chelonia mydas*); it is possible, that fly is capable of breeding in turtle nests although the presence of this species could also be due to sphecoid wasp nests being present in the sand and that infestation is due to sand disturbance during excavation (McGovan et al., 2001). Flies very xerothermic and psammophilous; feed on flowering plants and aphids' excreta (Draber-Mońko, 1973; Verves, 1977). In UA flying period is continued from the middle of May to the middle of September (Verves, 2006).

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, sandy coast of Dnipro, 23.06.1988, 2 ♂, 1 ♀ (S. Zrazhewsky); Sobachy I., 24.06.2006, 1 ♀ (Yu. Protzenko); Keleberda village, 5 km S, dry meadow near Kryvi Lakes, 6.06.2003, 6 ♂ (Yu. Verves). Kyiv City: Desna District: "Lisova" subway-station, 5 km E, mixed forest & bushes near lake Lisove, 20.07.2004, 2 ♀; Dnipro District: Hydropark, bushes, 16.06.2010, 1 ♀; Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 19 ♂, 1 ♀ (Yu. Verves). Poltava Region: Pyryatyn District: Lelyaky village, bank of Uday river, 15-17.07.2005, 1 ♀ (V. Gorobchyshyn). Zaporizhzhya Region: Berdyansk City, sandy spit at Azov Sea, 14-17.08.1994, 1 ♂, 1 ♀ (Yu. Verves).

### Subfamily *Eumacronychiinae*

#### 65. *Sarcotachina subcylindrica* Portschinsky, 1881

Distribution: Palaearctic: Europe: UA. Asia: AM, AZ, CN (Neimenggu), KZ, MN, RU (North Caucasus, South Siberia), TJ, TM, UZ. UA: Cherkasy, Crimea, Kharkiv, Kherson, Kyiv, Lugansk\*, Mykolaiv & Odesa\* Regions.

Larvae develop in dead insects, especially locusts, in egg-sacks of *Schistocerca gregaria* (Rohdendorf, 1932), and in live adult locust *Sphingonotus satrapes* (Charykuliev, 1965). Flies prefer sandy areas of river shores, steppe and deserts (Verves & Khrokalo, 2006b). In UA flying period is continued from May to the middle of September.

Material examined: Cherkasy Region: Kaniv District: Kaniv State Nature Reserve, Krugly I., 11.06., 1 & 15.07.1986, 3 ♂ (Yu. Verves). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 4 ♂, 5 ♀ (A. Drozdovska). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 4-20.07.1987 2 ♀ (S. Zrazhewsky); Ochakiv District: Kinburn sandy area, 16.05.2003, 1 ♂ (Yu. Protzenko). Odesa Region: Ismail District, Suvorove 12.08.2003, 1 ♀ (Yu. Protzenko).

### Subfamily *Paramacronychiinae*

#### 66. *Nyctia halterata* (Panzer, 1798)

Distribution: Palaearctic: Europe: widespread, including British Is., but absent in Fennoscandia; Asia: CY, IR, RU (North Caucasus), Transcaucasia, TR; North Africa: DZ, EG, LY, MA. UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Donezk, Ivano-Frankivsk, Kharkiv, Kherson, Khmelnytsky, Kirovograd, Kyiv, Poltava, Sumy\*, Ternopil, Vinnytsya and Zakarpattia Regions.

Larvae are internal suspected or facultative parasitoid of terrestrial snails *Helicella conspurcata* (Goureau, 1843), *Xeropicta krynikii* (Povolný & Verves, 1997), *X. conspurcata* (Coupland & Baker, 2004); bred from caterpillar *Lymantria dispar* (Aliev, 1986). Flies frequent humid forests, bushes, meadows, road borders and chalky wastes (Emden, 1954; Povolný & Verves, 1997); in mountains to 2200 m o. s. l.; feed at flowers of Apiaceae (Menzel & Ziegler, 2002).

Material examined: Cherkasy Region: Kaniv District: Trakhtemyriv village, 30 km N of Kaniv, 9.07.1988, 1 ♂ (S. Zrazhewsky). Kyiv City: Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 1 ♀; Golosieve District: "Didorovsky" pond, humid banks, 9.08.2002, 1 ♂; ibid., Vasylkivska street 33, yard, 15-23.06.2009, 1 ♂, 2 ♀; Pechersk District: Kyiv-Pechersk Lavra, bushes at hills, 21.05.2009, 2 ♂ (Yu. Verves). Sumy Region: Romny City, banks of Romenka River, meadows and bushes, 21-27.08.2009, 1 ♀ (Yu. Verves).

**67. *Agria affinis* (Fallén, 1817)**

Distribution: Palaearctic: Europe northwards to SE and Leningrad region, including British Is.; Asia: CN (Beijing, Quinghai, Xinjiang), KZ, LB, Mid Asia, MN, RU (southern Far East and Siberia), Transcaucasia, TR; North Africa: PT (Azores), LY. UA: Cherkasy, Chernigiv, Chernivtzi, Crimea, Ivano-Frankivsk, Kharkiv, Kherson, Kyiv, Lugansk, Lviv, Mykolaiv, Poltava, Zakarpattia, Zaporizzhya and Zhytomyr Regions.

Larvae are predators of lepidopteran pupae: *Amphidasis betularia* (Stepanova et al., 1977), *Anticlea derivata* (Lundbeck, 1927), *Aporia crataegi* (Baer, 1921; Blunck & Wilbert, 1962; Fedotova, 1950; Kolomyietz, 1958; Talizkiy, 1961; Vasilyev, 1902), *Aphelia* sp. (Pape, 1987), *Archips rosana* (Talizkiy, 1961), *Arctia* sp. (Lehrer & Dobrivojevic, 1970), *A. caja* (Baer, 1921), *Autographa gamma* (Pape, 1987), *Biston boreata*, *B. hirtaria*, *B. pomonaria* (Stepanova et al., 1977), *Cacoesia murinana* (Draber-Moňko, 1973), *C. rosana* (Talizkiy, 1961), *Cosmotriche potatoria*, *Dasychira albodentata* (Zinovyev, 1962), *Dendrolimus pini* (Baer, 1921; Čepelák, 1952; Entin, 1971; Khitzova, 1968; Kolomyietz, 1989; Ryvkin, 1956; Shapiro, 1956; Sierpińska, 1998; Sisojevič et al., 1976; Vasilyev, 2013; Yarmanshevich, 1970), *D. segregatus* (Vasilyev, 2013), *D. sibiricus* (Artamonov, 1993; Boldaruev, 1952, 1959; Kolomyietz, 1958; Rohdendorf & Verves, 1979; Stepanova et al., 1977; Zinovyev, 1962), *Diastictis artesiaria*, *Erranis defoliaria* (Stepanova et al., 1977), *Euproctis chrysorrhoea* (Girfanova, 1957), *Euxoa segetum* (Bilanovsky, 1936), *Hyphantria cunea* (Verves, 1982), *Larentia nigrofasciata* (Séguy, 1941), *Leucoma salicis* (Baer, 1921; Dyadechko, 1959b; Entin, 1971; Kolomyietz, 1958; Nielsen, 1914; Pisiča et al., 1978; Shapiro, 1956; Sisojevič et al., 1976; Stepanova et al., 1977; Yafaeva, 1977), *Lymantria dispar* (Artamonov, 1993; Barsacq, 2013; Belov & Panina, 1985; Falcó et al., 1990; Girfanova, 1957, 1962; Khanislamov et al., 1958; Kolomyietz, 1958, 1987; Kolybin & Zelinskaya, 1971; Martemyanov et al., 2013; Mukhin, 1974; Ryvkin, 1956; Shapiro, 1956; Sisojevič et al., 1976; Stepanova et al., 1977; Tereshkin, 1991; Tereshkin & Lobodenko, 1997; Vasilyev, 1902; Znamenskiy, 1989), *L. monacha* (Baer, 1921; Draber-Moňko, 1973, 1995; Girfanova, 1962; Kolomyietz, 1958; Nakonechny, 1973; Shapiro, 1956; Sliva, 1989; Stepanova et al., 1977), *Malacosoma neustria* (Bilanovskiy, 1936; Sisojevič et al., 1976; Stepanova et al., 1977; Tudor & Marcu, 1971), *Operophtera brumata*, *O. chenopodiata*, *Phigalia pedaria* (Stepanova et al., 1977), *Vanessa io* (Verves, 1982) and sawfly hosts: *Diprion pini*, *Empria abdominalis* (Baer, 1921). At temperature +19...21°C larvae are developed during 5-7 days, puparization take place in soil, puparium stadium is continued 23-24 days. One larva for the completion of development must use for food not less than 4 pupae of host. In one pupa of host to 12 larvae of this fly can develop; the larvae kill and eat larvae of all another species in infected pupae. 1<sup>st</sup> stage larvae entered in prepupae of hosts near the basis of pseudopodia. The prolificacy of ♀ is 75-100 1<sup>st</sup> stage larvae; ♀ larviposit on prepupae and pupae (Khanislamov et al., 1958). This species give one or two generations per year; first generation (obligate) with flying period from mid of May to July, and 2<sup>nd</sup> (facultative) – in August (Girfanova, 1958; Ryvkin, 1956). Flies feed on flowers (Draber-Moňko, 1973; Séguy, 1941), faeces, corpses, excreta of aphids (Artamonov, 1993; Verves & Khrokalo, 2006b). In mountains flies were collected at altitudes to 1100 m a. s. l. (Zhang et al., 2013). In UA this fly have 1<sup>st</sup> (May-June) and sometimes 2<sup>nd</sup> generation (July-August); imago prefer different humid and mesophytic forests, bushes and gardens (Verves, 2006).

Material examined: Kyiv City: Golosieve District: National Exhibition Centre, bushes, 26.05.2002, 1 ♂ (Yu. Verves).

**68. *Agria mamillata* (Pandellé, 1896)**

Distribution: Palaearctic: Europe northwards to NO and Karelia, including British Is.; Asia: KZ, Mid Asia, RU (Far East, North Osetia, South Siberia), Transcaucasia, TR. UA: Cherkasy, Chernigiv, Crimea, Ivano-Frankivsk, Kharkiv, Kyiv, Lviv, Odesa, Poltava, Sumy, Vinnytsya, Zakarpattia and Zaporizzhya Regions.

The larvae are specialized predators of final-instar larvae and pupae of Yponomeutidae (Lepidoptera): *Yponomeuta cognagellus* (Baer, 1921; Dijkerman, 1990; Karazeeva, 1951; Séguy, 1941), *Y. evonymellus* (Artamonov, 1985, 1988, 1995; Babenko & Pospelova, 1972; Dijkerman, 1990; Efremov, 1969; Junnikkala, 1960; Kuhlmann, 1995a, b; Pyornila, M. & Pyornila, A., 1979; Tiensuu, 1939), *Y. irrorellus* (Dijkerman, 1990), *Y. malinellus* (Bilanovsky, 1936, 1938; Bolotnikova, 1971, 1972; Bolotnikova et al., 1976; Dijkerman, 1990; Dyadechko, 1959a; Eremenko



at al., 1968; Featherstone, 2010; Grigoryan, 1988; Junnikkala, 1960; Karavaeva, 1962; Karavaeva & Romanenko, 1962; Petrov, 1951, 1964; Séguy, 1941; Sisojevič et al., 1986; Talitzkiy, 1961; Tiensuu, 1939), *Y. orientalis* (Artamonov, 1985; Efremov, 1969), *Y. padellus* (Artamonov, 1995; Baer, 1921; Dijkerman, 1990; Karavaeva & Romanenko, 1962; Makhnovskiy, 1962; Miczulski, 1987; Mowat & Clawson, 1995; Pape, 1987; Peregonchenko & Tarnakin, 1970; Séguy, 1941), *Y. plumbellus* (Dijkerman, 1990), *Y. rorellus* (Dijkerman, 1990; Grigoryan, 1988), and *Y. vigintipunctatus* (Dijkerman, 1990). Occasionally the larvae can feed pupae of another Lepidoptera: *Dendrolimus pini* (Bilanovsky, 1936; Rohdendorf, 1970; Séguy, 1941), *Euproctis chrysorrhoea* (Mamedov, 1988; Stratan, 1984), *Leucoma salicis* (Georgiev & Langurov, 1997; Zaharieva-Pentcheva & Georgiev, 1997), *Lithophane leautieri*, *Lymantria dispar* (Mamedov, 1988), *Mamestra brassicae* (in laboratory conditions only: Karazeeva, 1951), and sawfly *Angitia armillata* (Bilanovsky, 1936). One larva destroys 2-10, generally – 3-5 pupae of moth during 15-25 days. The adult larvae or pupae overwintered in soil under turf at depth 2-3 cm. This is a monovoltine species; flying period is continued from the beginning of May to the middle of July. Flies feed on destroyed fruits and flowers. This culturophilous species is common in gardens, mesophytic and humid forests (Artamonov, 1985; Bilanovsky, 1938; Dyadechko, 1959a; Eremenko et al., 1968; Gomolitzkaya, 1969a, b; Junnikkala, 1960; Petrov, 1951, 1964; Servadei, 1931; Verves & Khrokalo, 2006b; Yakhontov et al., 1965; Yakhontov & Gomolitzkaya, 1974).

Material examined: Kyiv City: Golosieve District: Pyrogiv field Museum, 28.05.2000, 1 ♂; Vasylykivska street 98, yard, 12. & 18.06.2002, 2 ♂ (Yu. Verves).

### 69. *Agria monachae* (Kramer, 1908)

Distribution: Palaearctic: Europe: BY, CZ (Moravia), DE, RU, PL, SK, CH, UA; Asia: JP (Hokkaido, Honshu), RU (Far East, South Siberia). UA: Kyiv region.

Larvae are developed in dead insects, fish, pork liver during 6-8 days (Artamonov, 1983); they also known as facultative predators of *Dendrolimus pini* (Ryvkin, 1956; Sierpińska, 1998; Yarmanshevich, 1970), *D. sibiricus* (Artamonov, 1985), *Leucoma salicis* (Schnaiderowa, 1959), *Lymantria dispar* (Artamonov, 1985), *L. monacha* (Artamonov, 1985; Draber-Mońko, 1973, 1995; Kolomyietz, 1958; Kramer, 1908; Nolte, 1949). Imagoes feed at meat, fish, corpses, excrements, sweat of man, mucous secrets from mouth and nose of hoof animals, at haemolymph of wounded insects; mass species; prefers cedar-broad-leaved forests; common in forest villages; flying period from end of May to the beginning of September (Artamonov, 1988, 1993, 1995).

### 70. *Angiometopa falleni* Pape, 1986

Distribution: Europe northwards to NO and Kola Peninsula, included United Kingdom; Asia: AM, CN (Beijing, Liaoning, Neimenggu, Sichuan), GE, IR, KZ, MN, RU (North Caucasus, South Siberia), UZ. UA: Cherkasy, Chernigiv, Crimea, Kharkiv, Kyiv, Lugansk, Poltava\* and Zhytomyr Regions.

Larvae were found in pupae of *Lymantria monacha* (Komárek, 1938), wounds of humans and horses (Alessandrini, 1895; Enden, 1954; Séguy, 1941). Flies prefer borders and glades of mesophytic forests (Verves & Khrokalo, 2006b); feed on flowers of *Evonomus europaea*, *Pastanaca sativa*, *Peucedanum oreoselinum* (Draber-Mońko, 1973).

Material examined: Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, pine forest near Trubin lake, 7.07.2000, 1 ♂ (Yu. Verves); Koryukivsky District: Gutyshche village, near pond, 3-7.07.2003, 1 ♂ (L. Khrokalo & A. Drozdovska). Poltava Region: Pyryatyn District: Grabarivka village, meadows near Ruda river, 15.07.2009, 1 ♂ (Yu. Verves).

### 71. *Angiometopa mihalyii* Rohdendorf & Verves, 1978

Distribution: Palaearctic: Europe: UA: Asia: CN (Beijing, Shanxi), KP, KR, MN, RU (Chita Region, Southern Primorye). UA: Kharkiv Region.

Larvae were developed in dead field-vole *Clethrionomys rutilus*. Flies prefer the human dwelling in wood zone, glades and borders of different forests, where feed at human sweat, animal corpses, faeces (Artamonov, 1987, 1993).

**72. *Brachicoma devia* (Fallén, 1820)**

Distribution: Widely distributed in Palaearctic: Europe northwards to NO and Kola Peninsula, included GB; Asia: CN (Heilongjiang, Neimenggu, Sichuan, Xinjiang, Xizang), JP, KZ, MN, RU (North Caucasus, Siberia, Far East), SA, Transcaucasia. Nearctic: CA (Ontario, Quebec), US (Alaska, Idaho, Michigan, Washington). Oriental: CN (Yunnan), IN (Jammu & Kashmir). UA: Cherkasy, Chernigiv, Chernivtsi, Dnipropetrovsk, Donetsk, Ivano-Frankivsk, Kharkiv, Kherson, Khmelnytsky, Krym Republic, Kyiv, Lugansk, Lviv, Poltava, Sumy\*, Volyn, Zakarpattia, Zaporizzhya and Zhytomyr Regions.

Females enter bumblebee nests and lay their living maggots on the skins of the unsuspecting bumblebee larvae. Maggots are waiting for time, when the bumblebee larvae are well fed and start to pupate, and only then begin their feeding (Schmid-Hempel, 1998, 2001). Fly larvae are the predators of prepupae of bumble bees *Bombus agrorum* (Baer, 1922; Lundbeck, 1927), *B. hortorum* (Verves & Khrokalo, 2006a), *B. hypnorum* (Hasselrot, 1960), *B. impatiens* (Pelletier & McNeil, 2003; Schmid-Hempel, 1998), *B. lapidarius* (Hasselrot, 1960), *B. pratorum* (Baer, 1922), *B. ruderarius* (Séguy, 1941), *B. ruderatus* (Hamm, 1942), *B. silvarum* (Baer, 1922), *B. soroensis* (Lundbeck, 1927), *B. ternaries* (Goulson, 2003; Pelletier & McNeil, 2003; Schmid-Hempel, 1998), *B. terrestris* (Baer, 1922; Hasselrot, 1960; Lundbeck, 1927; Schmid-Hempel, 2001) and social wasp *Vespula silvestris* (Baer, 1922).

Adult flies prefers mesophytic meadows, bushes, borders and glades of forests, gardens, environs of human dwellings etc., where feed on dropping fruits (Verves & Khrokalo, 2006b), flowers of *Anethum graveolens* (Verves, 2003), *Daucus carota* (Jędrzejewska-Szmek & Zych, 2013), *Calluna vulgaris*, *Evonymus europaea*, *Peucedanum cervaria*, *Crataegus* sp., *Prunus spinosa*, *Sorbus* sp., sweet excreta of aphids *Tinocallis platani* (Draber-Mońko, 1973).

Material examined: Cherkasy Region: Uman City, Dendrological park "Sofiivka" 11.06.2005, 1 ♀ (Yu. Verves). Chernigiv Region: Borzna District: environs of Yaduty village, Biological Station of Nizhyn University, pine forest near Trubin Lake, 9.07.-25.08.2000, 9 ♂, 3 ♀ (Yu. Verves); Korop District: environs of Guta village, meadows near pond, 17-20.07.2003, 1 ♂; ibid., environs of Obolonye village, near forest, 17.07.2003, 1 ♂ (L. Khrokalo & A. Drozdovska). Kyiv City: Golosieve District: "Didorovsky" pond, humid banks, 25.08.1999, 1 ♀; ibid., 9.08.2002, 2 ♂, 2 ♀; Golosieve Park in memory Maxym Rylsky, 10.06.2009, 1 ♀; "Theophania" park, 11.06. & 29.07.2013, 2 ♀; Sovky hole, coast of pond, humid meadow, 30-31.07.2002, 9 ♂, 2 ♀; 16.07.2003, 1 ♀; Vasylykivska street 33, yard, 18.06.2009, 1 ♀; Vasylykivska street 98, yard, 2.05-22.07.2002, 4 ♂, 2 ♀; Williams street, dry meadows, 28.07.2001, 1 ♂; 25.04.2002, 1 ♂; Baykove Cemetery, 13.07. & 17.09.2003, 2 ♀; Pechersk District: bushes at hills near Kyiv-Pechersk Lavra, 21.05.2009, 1 ♂, 1 ♀; Podil District: humid meadow nr pond, 3-4.06.2000, 1 ♀ (Yu. Verves). Kyiv Region: Boryspil District: environs of Rozhny village, bushes at coast of Dnipro, 15-16.08.1999, 3 ♀; Brovary District: Zazymya village, 5 km N, meadows near Desna, 1.08.2001, 2 ♂; Kyiv-Svyatoshyn District: Kruglyk village 10 km S of Kyiv, meadow nr pond, 30.04.2000, 1 ♂ (Yu. Verves). Poltava Region: Pyryatyn District: Grabarivka village, meadows near Ruda river, 15.07.2009, 1 ♂; Keybalivka village, meadows at bank of Uday river, 11-18.07.2009, 5 ♂. Sumy Region: Serednya Buda District: Desnyansko-Starogutsky National Nature Park, 8.07.2008, 2 ♂ (Yu. Protzenko); Trostyanetz City, 10 km S, dry meadows, 3.08.1999, 1 ♂ (Yu. Verves).

**73. *Brachicoma papei* Verves, 1990**

Distribution: Palaearctic: Europe: CZ, DE, RU (Leningrad Region), UA; Asia: RU (Primorye). UA: Kharkiv Region.

Larvae were collected in nest of *Bombus* sp. (Verves, 1990b).

**74. *Paramacronychia flavipalpis* (Girschner, 1881)**

Distribution: Palaearctic: Europe: AT, CZ, FR, DE, IT, ME, PL, RU (Perm Region), SK, CH, UA. Asia: AM, AZ, CN (Xinjiang), KZ, KG, MN, RU (southern Siberia, Far East). UA: Cherkasy Region.

Flies prefer mesophytic bushes and grasslands in montanous regions, rarely hillsides at plains.

Material examined: Cherkasy Region: Kaniv State Nature Reserve, hillside, at ground, 15.06.2003, 1 ♂ (Yu. Verves).

### 75. *Sarcophila latifrons* (Fallén, 1817)

Distribution: Palaearctic: Europe northwards to NO and Kola Peninsula, including British Is.; Asia: Transcaucasia, CN (Shandong, Xinjiang), TR, IL, IR, KZ, RU (Siberia, Far East), TJ; North Africa: ES (Canary Is.). UA: Cherkasy, Chernigiv, Crimea, Dnipropetrovsk, Ivano-Frankivsk, Kharkiv, Kherson, Khmelnytsky, Kirovograd, Kyiv, Lviv, Odesa, Poltava, Rivne, Sumy\*, Volyn, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Larvae bred in dead insects and vertebrate animals (in experimental laboratory conditions they were developed on white of hen's eggs), in living helioid snail *Cepaea nemoralis* (Richet, 1990), orthopteran nymphs and adults *Chorthippus albomarginatus*, *C. longicornis*, *Dociostaurus maroccanus* (Baer, 1921; Draber-Moňko, 1973; Ségué, 1941; Verves, 1987), adult beetles: scarabaeid *Oryctes nasicornis* (Baer, 1921, 1922; Ségué, 1941), tenebrionid *Blaps halophila*, *B. lethifera*, *Tentyria nomas* (Knor, 1970), buprestid *Capnodis carbonaria*, *C. tenebrionis* (D'Aguilar & Feron, 1949; Rivnay, 1947), pupae of lepidopteran hosts *Acantholeucania lorei*, *Sesamia cretica* (Gözüaçık & Mart, 2009), *S. nonagrioides* (Aksoy & Bahadıroğlu, 2012; Gözüaçık & Mart, 2009); some cases of aural and intestinal human myiasis are known too (Alessandrini, 1895; Portsichinsky, 1876; Sajo, 1898; Ségué, 1941). Adult flies prefer meso- and xerophytic meadows, bushes, steppe, borders and glades of forests, pastures, ground roads, gardens, environs of human dwellings etc., where feed on dead invertebrate and vertebrate animals, faeces, cattle dung, flowers, saccharine excreta of aphids, dropping fruits (Jędrzejewska-Szmek & Zych, 2013; Lehrer, 2003; Martínez-Sánchez et al., 2000a, b; Verves, 1982; Verves & Khrokalo, 2006b).

Material examined: Cherkasy Region: Kaniv State Nature Reserve, Krugly I., 13.06.1986, 1 ♀ (Yu. Verves). Chernigiv Region: Borzna District: Yaduty village, Biological Station of Nizhyn University, sand-pit in pine forest near Trubin lake, 8.07.-19.08.2000, 4 ♂, 11 ♀; Ichnya District: "Trostyanetz" dendrological park, meadows and forest at lake coast, 13.08.1999, 5 ♂ (Yu. Verves); Korop District: Guta village, meadows nr pond, 17-20.07.2003, 2 ♂; Sosnytzia District: environs of Khlopyanyky village, meadows near stream, 22.07.2003, 1 ♂ (L. Khrokalo & A. Drozdovska). Kyiv City: Desna District: "Druzhby Narodiv" park, meadows nr lake, 8.07.2005, 1 ♂; Dnipro District: Moscow bridge, 2 km N, island on Dnipro, 30.05.2008, 1 ♂; Golosieve District: Prospect Nauki street, hills "Lysa Gora", bushes, 19.08.2004, 1 ♀ (Yu. Verves). Kyiv Region: Boryspil District: Rozhny village, bushes at coast of Dnipro, 16.08.1999, 1 ♀; Kyiv-Svyatoshyn District: Gostomel village, 4 km N, meadows at right bank of Irpin river, 8.07.2001, 1 ♂; Myronivka District: Tulyntzy village, feather-grass steppe with bushes, 4.06.2003, 1 ♀ (Yu. Verves). Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 26.04.1986 (S. Zrazhewsky). Odesa Region: Ismail District: Kyslytzia village, 15 km SE, 2.08.2009, 4 ♂, 1 ♀ (Yu. Protzenko); 5 km SE, 7. & 9.08.2009, 4 ♂, 2 ♀; Suvorove village, 20-23.08.2009, 7 ♂, 4 ♀ (V. Corobchysyn). Poltava Region: Grebinky District: Kulazhyntzy village, meadows, 13 & 15.08.2010, 1 ♂, 1 ♀; Oleksandrivka village, kurgan "Gostra Mogyla", 14.07.2009, 4 ♂, 5 ♀; Ulyanivka village, meadows, 13.07.2009, 1 ♂, 1 ♀; Pyryatyn District: Grabarivka village, meadows near Ruda river, 15.07.2009, 2 ♂, 1 ♀; Keybalivka village, meadows at bank of Uday river, 11.07.2009, 1 ♀; Kharkivtzy village, 2 km S, locality "Velyki Solontzi", 13-14.07.09, 3 ♂, 2 ♀; Lelyaky village, 11.07.2009, 1 ♂; 16.08.2010, 1 ♀; Povstyn village, locality "Burty", meadows, 12.07.2009, 2 ♂, 1 ♀; Shkuraty village, meadows, 17.07.2009, 2 ♀; Usivka village, meadows, 10 & 16.07.2009, 1 ♂; Zhovtneve village, meadows, 13.07.09, 5 ♂; (A. Drozdovska, V. Gorobchysyn, Yu. Verves). Sumy Region: Sumy District: Mogrytzya village, 7-9.08.2009, 2 ♂, 1 ♀ (Yu. Protzenko). Zaporizhzhya Region: Melitopol District: Altagir river, estuary, dry meadows, 28.08.1997, 2 ♂, 2 ♀ (Yu. Verves).

### 76. *Sarcophila meridionalis* Verves, 1982

Distribution: Palaearctic: Europe: GR (Crete), IT (mainland), RU (Krasnodarskiy Kray), ES, UA; Asia: AF, AM, AZ, CY, IR, IL, KZ, Mid Asia, SY, PA; North Africa: DZ, EG. UA: Crimea\*,

Dnipropetrovsk, Donetsk\*, Kherson, Khmelnytsky, Lugansk\*, Mykolaiv, Poltava\* and Zaporizhzhya Regions.

Larvae bred in dead insects and vertebrates; known as facultative parasites of adult acrid *Locusta migratoria* (Verves, 1982) and tenebrionid beetles *Adesmia servillei schatzmayri*, *Trigonoscelis punctipleuris*, *Pisterotarsa gigantea zoubkoffi* (Charykuliev & Nepesova, 19724). Adult flies prefer xerophytic meadows, bushes, steppe, pastures, ground roads, environs of human dwellings etc., where feed on dead invertebrate and vertebrate animals, faeces, dung, flowers, dropping fruits (Sychevskaya, 1957; Trofimov, 1969).

Material examined: Crimea: Bakhchysaray Region: Beregove village, sandy area, 3-8.08.2004, 3 ♂; Lenino District: Kazantip State Reservation, 10-13.05.2005, 1 ♀; 17-29.07.2007, 9 ♂, 8 ♀ (L. Khrokalo, Yu. Verves). Donetsk Region: Donetsk City, ground road, 14.06.1990, 3 ♂, 2 ♀ (Yu. Verves). Kherson Region: Skadovsk District: Novo-Oleksiivka village, near poultry farm, at horse and pig dung, 5.09.1961, 1 ♀ (O. Viktorov-Nabokov). Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska). Mykolaiv Region: Ochakiv District: Parutino village, sandy sea bank, 15-16.07.2006, 1 ♂, 3 ♀; debris of antic Olvia City, 16.07.2006, 6 ♂, 4 ♀ (Yu. Verves). Odesa Region: Ismail District: Suvorove village, 21.05.2003, 1 ♀ (Yu. Protzenko). Poltava Region: Grebinky District: Oleksandrivka village, kurgan "Gostra Mogyla", 14.07.2009, 2 ♂, 3 ♀; Pyryatyn District: Grabarivka village, meadows near Ruda river, 15.07.2009, 7 ♂, 7 ♀; Gurbintzy village, 16.07.2009, 1 ♀; Kharkivtzy village, 2 km S, locality "Velyki Solontzi", 13-14.07.09, 3 ♂, 1 ♀; Povstyn village, locality "Burty", meadows, 12.07.2009, 3 ♂; Shkuraty village, meadows, 17.07.2009, 1 ♀; Zhovtneve village, meadows, 13.07.09, 7 ♂, 1 ♀ (A. Drozdovska, V. Gorobchysyn, Yu. Protzenko, Yu. Verves). Zaporizhzhya Region: Akymivka District: Altagir village, meadows & bushes, 4-15.06.2008, 1 ♂ (Yu. Verves); Berdyansk City [as "Osipenko"], sandy area, at *Euphorbia* sp., 26.06.1941, 1 ♀ (N. Gulinov); sandy spit at Azov sea, 14-17.08.1994, 1 ♂, 3 ♀; Artemivsk District: Kyrylivka village, Fedotova kosa, sandy area nr sea coast, 16.08.1997, 3 ♂, 1 ♀; Pryazovske District: Stepanivka village, sandy coast of Azov sea, 10-27.08.1997, 24 ♂, 41 ♀ (Yu. Verves).

### 77. *Wohlfahrtia balassogloi* (Portschinsky, 1881)

Distribution: Palaearctic: Europe: RU (Astrakhan & Orenburg Regions), UA; Asia: AM, AZ, CN (Neimenggu, Xinjiang), IR, KZ, Mid Asia, MN, RU (Buryatia, Chita & Stavropol Regions). UA: Kherson and Zaporizhzhya Regions.

Larvae are developed in dead insects, especially locusts, and their destroyed oothecae (Rohdendorf, 1932, 1956), and dead rabbits in laboratory conditions (Valentyuk, 1971, 1972); known as facultative parasites of locusts *Locusta migratoria* (Rossikov, 1999) and *Schistocerca gregaria* (Bogush, 1959; Telenga, 1930). Psammophilous species; flies are attracted by faeces and flowers (Rohdendorf, 1956; Verves & Khrokalo, 2006b).

Material examined: Zaporizhzhya Region: Pryazovske District: Stepanivka village, sandy coast of Azov sea, 11 & 20.08.1997, 2 ♀ (Yu. Verves).

### 78. *Wohlfahrtia intermedia* (Portschinsky, 1887)

Distribution: Palaearctic: Europe: RU (North Caucasus, Orenburg and Samara Regions), UA; Asia: CN (Neimenggu, Xinjiang), GE, KZ, MN, RU (Buryatia & Chita Region), TM. UA: Crimea, Kherson, Lugansk\*, Poltava and Zaporizhzhya Regions.

Larvae are developed in corpses of vertebrate animals (Valentyuk, 1971, 1973; Verves, 1985). Xerophilous species; adult flies prefer dry meadows, steppe, and deserts (Rohdendorf, 1956; Verves & Khrokalo, 1986b); feed on flowers of *Achillea micrantha* (Gudjabidze, 1970). Flying period is continued from May to the middle of August, with peak in June (Valentyuk, 1971).

Material examined: Lugansk Region: Stanychno-Luganska District: Nova Kindrashivka village, sandy area, 1.08.2008, 1 ♂ (A. Drozdovska). Zaporizhzhya Region: Pryazovske District: Stepanivka village, sandy coast of Azov sea, 23-27.08.1997, 9 ♂, 2 ♀ (Yu. Verves).

<sup>4</sup> As "*Agria latifrons*"; misidentification.



**79. Wohlfahrtia magnifica (Schiner, 1862)**

Distribution: Palaearctic: Europe: AL, AT, BE, BG, BY, HR, FR, DE, GR, HU, IT, LT, MD, PL, PT, RO, RU (southern and central Regions), RS, SK, ES, UA; Asia: CN (Beijing, Gansu, Jilin, Neimenggu, Ningxia, Xinjiang), CY, KZ, Mid Asia, Mid East, MN, RU (South Siberia), Transcaucasia; North Africa: DZ, EG, LY, MA, TN. Afrotropical: ET. Oriental: IN (Uttar Pradesh). UA: Crimea, Kharkiv, Kherson, Kyiv, Mykolaiv, Odesa, Poltava, Zaporizzhya, Zakarpattya Regions.

The females deposit 120-170 1st stage larvae at sites of wounding on the host, or beside its body orifices (Kettle, 1995). Larvae produced very dangerous, sometimes deadly diseases (myiasis) of humans, including infants (Burnett, 1990; Hall & Smith, 1993; Hartley & Writer, 2009; Noutsis & Millikan, 1994; Portsichinsky, 1884, 1916; Zumpt, 1965): anal (Soler-Cruz, 2000), aural (auricular) (Angulo, 1935; Bayındır et al., 2010; Casanova-Roman et al., 2010; Çiftçioglu et al., 1997; Condorelli, 1914; Dik, Uslu & Işık, 2012; El-Kadery & El-Begermy, 1989; Fawzy, 1991; Karaman et al., 2009; Macías y Macías, 1935; Najera, 1935; Ruzsky, 1897; Soler-Cruz, 2000; Tligui, Bouazzaoui & Agoumi, 2007), buccal (Soler-Cruz, 2000), cutaneous, predominantly traumatic (Chubkova, 1950; Degeith & Beaucournu, 2008; Dik et al., 2012; Gan, 1953; Hall, & Farkas, 2000; Iori et al., 1999; Lmimouni et al., 2004; Pavlovsky, 1934; Portsichinsky, 1884, 1916; Ruiz-Martínez & Leclercq, 1994; Tuygun et al., 2009), gingival (dental, oral) (Anil, Jacob & Hari, 1989; Athari & Fallan, 1992; Aydenizöz & Dik, 2008; Brandt, 1880, 1888; Büyükkurt et al., 2008; Dik et al., 2012; Droma et al., 2007; Konstantinidis & Zamanis, 1987; Mohammadzadeh et al., 2008; Ozsoy et al., 2013; Tang et al., 2003; Zelster & Lutschmann, 1988), nasal (Çiftçioglu et al., 1997; Portsichinsky, 1916; Ruzsky, 1897), ocular (orbital, ophthalmomyiasis) (Akhmetov, 1988; Baruch et al., 1980; Kovadlo, 1956; Maurya et al., 2012; Morsy & Farrag, 1991; Najera, 1942; Portsichinsky, 1916; Ruzsky, 1897), orotracheal (Çiftçioglu et al., 1997), sinUSI (Portsichinsky, 1916; Soler-Cruz, 2000), uretral (López Neyra & Esteves, 1949; Rodriguez & Santiago, 1949; Salimi et al., 2010), vaginal (Delir et al., 1999; Ruzsky, 1897; Soler-Cruz, 2000). Sometimes larvae are developed in cancer tumors (Koksam & Şaki, 2005; Uzun et al., 2004). Different warm-blooded animals are hosts of this species (Hall & Farkas, 2000; Verves, 1985), such as Arabian camel (Hadani et al., 1989; Higgins, 1985), Bactrian camel (Gan, 1953; Higgins, 1985; Ribbeck & Beuling, 1977; Uzun et al., 2004), cat (Gan, 1953), cattle (Degeith & Beaucournu, 2008; Portsichinsky, 1884, 1916; Ruzsky, 1897; Sotiraki et al., 2010), chicken (Gan, 1953), dog (Hall & Smith, 1993; Portsichinsky, 1884, 1916; Rohdendorf, 1930; Şaki, 2004), donkey (Gan, 1953; Farkas et al., 2009; Hall & Smith, 1993; Pavlovsky, 1934), gazelle (Sevgili et al., 2004), geese (Akhmetov & Baidavletov, 2000; Farkas et al., 2001; Hall & Smith, 1993; Ruiz-Martínez et al., 1992; Sergushin, 1999), goat (Gan, 1953; Hall & Smith, 1993; Ruiz-Martínez & Leclercq, 1994; Ruiz-Martínez et al., 1991; Soler-Cruz, 2000; Sotiraki et al., 2010), hare (Gan, 1953; Portsichinsky, 1884), hedgehog (Gan, 1953; Valentyuk, 1969, 1970), horse (Farkas & Képes, 2001; Gan, 1953; Hall & Smith, 1993; Portsichinsky, 1884, 1916), leopard (Rosen et al., 1998), pig (Baranov, 1943; Hall & Smith, 1993; Portsichinsky, 1884, 1916), mouse, rat, rabbit (Sychevskaya, 1954), sheep and lamb (Aydenizöz & Dik, 2008; Domatzky & Lychagin, 1997; Farkas, 1996; Farkas et al., 1997; Gan, 1953; Goncharov, 1972; Hadani et al., 1971; Hall, 1997; Hall & Smith, 1993; Hall et al., 1995; Isimbekov, 1983; Janbakhs et al., 1976; Kadhyrova, 1970; Lehrer et al., 1988; Lehrer & Verstraeten, 1991; Morozova & Valetova, 1997; Moğ et al., 2013; Nazarmukhammedov, 1950; Nedelchev, 1988; Pavlovsky, 1934; Pokidov & Goncharov, 1971; Pokidov & Khranovskii, 1984; Portsichinsky, 1884, 1916; Ruiz-Martínez & Leclercq, 1994; Ruiz-Martínez et al., 1987, 1991, 1992; Şaki & Özer, 1999a, b; Soler-Cruz, 2000; Soler-Cruz et al., 1996; Sotiraki et al., 2010; Ternovoy, 1960, 1962; Tóth et al., 1998; Urakov, 1979; Valentyuk, 1969, 1971). The myiasis of cold-blooded animals very rare and occasional: several cutaneous myiasis of steppe tortoise, *Testudo horsfieldi* are known (Gan, 1953; Kadhyrova, 1970). In Zoo of Askania-Nova Biosphere Reserve larvae caused myiasis of *Ammotragus lervia*, *Bos javanicus*, *Bison bison* x *Bison bonasus* (hybrid form), *Bubalus caffer*, *camelus dromedarius*, *Capra sibirica*, *Cervus dama*, *C. elaphus canadensis*, *Connochaetes taurinus*, *Equus burchelli*, *E. hemionus*, *E. przewalskii*, *E. zebra*, *Lama glama*, *L. guanicoe*, *ovis musimon*, *rangifer tarandus*, *vatussi* livestock (Treus et al., 1985), *Saiga tatarica* (Zvegintzova, 2011). In sheep the larvae lived more often near anal opening, at prepuce, near base of horns, in eyes and guns; in livestock – at external genital organs (Hall, 1997; Hall & Farkas, 2000; Hall & Wall, 1995). In 2001-2002 in ovine farms of Ukrainian forest-steppe (Kharkiv) 60.6 % of sheep were invaded, in steppe (Crimea, Kherson) 77 % of sheep were invaded, generally – 67.75 % (Skyba, 2004). Larvae develop in wounds during the 4-7 days and

then pupated in soil. During feeding period, larvae burrow deeply into the host's tissues so that only the posterior segment and spiracles are exposed (Hall & Wall, 1995). The pupal stage lasts for 15-16 days at  $t = 25...260^{\circ}\text{C}$  and 19-20 days at  $t = 23.5...24.50^{\circ}\text{C}$ . The longevity of imaginal phase under the laboratory conditions equals 15-17 days. Pupae wintering in soil. Flies prefer dry meadows, steppe, pastures and environs of farms. The adults feed on dead invertebrate and vertebrate animals, faeces, cattle dung, saccharine excreta of aphids, dropping fruits (Sychevskaya, 1954; Ternovoy, 1960; Valentyuk, 1971; Verves & Khrokalo, 2006b), flowers of *Asimina triloba* (Grabovetzka, 2010), *Euphorbia seguieriana*, *Eryngium vulgare* (Valentyuk, 1969).

Material examined: Mykolaiv Region: Berezanka District: Tiligul lyman, coast, 27.06.1985, 1 ♀ (S. Zrazhewsky).

### 80. *Wohlfahrtia meigeni* (Schiner, 1862)

Distribution: Widely distributed in Palaearctic: Europe northwards to UK, Transcaucasia, KZ, Siberia, CN, MN, RU (Far East). Nearctic: CA (Alberta, British Columbia, Quebec, Saskatchewan), US (Arizona, California, Colorado, Idaho, Nevada, New MX, Kansas, Oregon, Utah, Washington). Oriental: PK. UA: Cherkasy, Chernigiv, Chernivtsi, Crimea, Dnipropetrovsk, Donetsk, Kharkiv, Kherson, Khmelnytsky, Kyiv, Lugansk, Lviv, Odesa, Poltava, Sumy\*, Ternopil, Volyn, Zakarpattia, Zaporizhzhya and Zhytomyr Regions.

Female fertility consists from 21-45 larvae (Valentyuk, 1970). Larvae produced furuncular myiasis of different vertebrate animals (Verves, 1985), such as amphibians *Rana semiplicata* (Artamonov, 1985) and *Bufo vulgaris* (Čepelák, 1952), turtle *Chelonia mydas* (Khan & Khan, 1986), nestlings of dusks *Anas clypeata* and *A. discors* (Wobeser et al., 1981), rabbits (Valentyuk, 1970), rats (Morrison, 1937), American marsh *Mustela vison*, dogs (Aabler, 1961), foxes (Gassner, 1944a, b), and men (Aabler, 1961; Dong, 1976; Eads, 1979; haufe & Nelson, 1957; Khan & Khan, 1974; Stabler, 1958, 1961; Stabler et al., 1962). A case of intestinal myiasis of coyote *Canis latrans* was recorded too (Grundmann & Butler, 1953). Adult flies feed on flowering plants, excreta of aphids, dead vertebrate animals, excrements, different liquids; prefer meso- and xerophilous meadows, steppes, borders of bushes and forests, ground roads, pastures, gardens and parks in settlements (Artamonov, 1987, 1988; Valentyuk, 1970; Verves & Khrokalo, 2006b).

In UA not rare in all Regions. Relatively psammophilic species: ♂ at sandy areas in borders of aluvials, different meadows, steppes, fields, dry wood borders, in cities – at ground and sandy roads, at tips of hills. ♂ formed preconnubial associations at sandy areas only. Flying activity – from May (in Crimea – from mid April) to mid October, with peak in August.

Material examined: Cherkasy Region: Trakhtemyriv village, 30 km N of Kaniv, 3.07.1988, 1 ♂ (S. Zrazhewsky). Kyiv City: Williams street, dry meadows, 14.07.2001, 1 ♂ ; ibid., 12.08.2002, 1 ♂ ; shores of lakes nr Shevchenko square, 27.09.2006, 1 ♂ (Yu. Verves). Kyiv Region: Boryspil District, environs of Rozhny village, bushes at coast of Dnipro, 16.08.1999, 1 ♂ (Yu. Verves). Poltava Region: Grebinky District, environs of Ulyanivka village, meadows, 13.07.2009, 1 ♂ ; Pyryatyn District, Gurbyntzi village, on flowering *Apiaceae*, 18.07.2005, 1 ♀ ; ibid., environs of Keybalivka village, meadows near Uday river, 11.07.2009, 1 ♀ ; ibid., 2 km S of Kharkivtzy village, locality "Velyki Solontzi", 13-14.07.09, 1 ♂ ; ibid., environs of Kaplyntzi village, meadows, 13.07.2009, 1 ♂ ; ibid., environs of Davydivka village, meadows, 15.07.2009, 1 ♂ (Yu. Verves). Sumy Region: Romny City, banks of Romenka river, sandy area, 27.08.2009, 1 ♂ (Yu. Verves). Zaporizhzhya Region: environs of Melitopol, "Kamyani Mogyly" reservation, at stones, 28.08.1997, 1 ♀ (Yu. Verves).

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**C o n t e n t s :** Verves,Y. & L. Khrokalo, An annotated list of the *Sarcophagidae* (*Macronychiinae*, *Miltogramminae*, *Eumacronychiinae* and *Paramacronychiinae*) recorded in Ukraine (*Diptera*), p.1 -- **editorial** p. 46.

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